SWIS # 44-AA-0002

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

February 11, 1994

ITEM: 18

SUBJECT: WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF WATSONVILLE CLASS III LANDFILL, SANTA CRUZ COUNTY, ORDER NO. 94-020.

KEY INFORMATION:
Location: Approximately 3.5 miles west of the City of Watsonville, off San Andreas Road.
Type of Wastes: Non-hazardous municipal solid wastes.
Remaining Capacity: 3.2 million cubic yards.
Disposal method: Areal with 10 foot lifts.
Existing Orders: Waste Discharge Requirements Order No. 87-35 and Waste Discharge Requirements No. 93-84 (Blanket Order).

SUMMARY:

Existing Waste Discharge Requirements (Requirements), Order No. 87-35 regulating discharge to the Watsonville Landfill are outdated and in need of revision. In addition, State adoption of revised land waste disposal regulations and the promulgation of federal municipal solid waste landfill regulations require revising all existing landfill's Waste Discharge Requirements. State revisions were developed in part to coordinate with revised federal regulations, and thereby aid the State in becoming USEPA "authorized", whereby the state may independently implement regulatory programs. The essence of the State's revised regulations focus on improved water monitoring programs for all landfills. The Federal regulations, on the other hand, set forth minimum federal criteria for location, design, operation, clean-up, and closure of municipal solid waste landfills.

These Requirements are being revised to incorporate criteria applicable to solid waste disposal sites, particularly:

a. criteria established in California Code of Regulations, Title 23, Division 3, Chapter 15, Article 5 (Article 5) pertaining to landfill water quality monitoring and response programs, as amended July 1, 1991;

b. criteria established in California Code of Regulations, Title 14, Division 7, Chapter 3, Article 7.8, and Chapter 5, Articles 3.4 and 3.5, pertaining to Closure and Post-Closure Regulations; and

c. criteria established in 40 Code of Federal Regulations, Parts 257 and 258 Solid Waste Facility Disposal Criteria, Final Rule (Known as "Subtitle D"), as promulgated October 9, 1991.

Implementation of applicable revised Article 5 monitoring requirements and federal Subtitle D landfill regulations will bring the Landfill into compliance with current landfill requirements.

DISCUSSION:

California Code of Regulations, Title 23, Division 3, Chapter 15, Article 5 (Article 5), pertaining to landfill water quality monitoring and response programs, was revised effective July 1, 1991. The Article 5 regulations required landfill facility owner/operators to:

1. Submit a proposed monitoring program in compliance with revised Article 5 regulations. The proposal must be in the form of a Report of Waste Discharge (Report) due June 30, 1992. The Report must contain all information necessary to update the Requirements. The Regional Boards are, in turn, required to revise all Requirements to implement the provisions of revised Article 5, within two years of a complete submittal, and

2. Establish and maintain financial assurance for initiating and completing corrective action to cover a "known or reasonably foreseeable" release from their landfill waste management unit(s).

The Discharger submitted a Proposed Monitoring Program (Monitoring Program) in compliance with revised Article 5. The Monitoring Program includes proposals for:

a. Financial assurance for possible future corrective action;

b. Monitoring systems;

c. Water quality protection standard(s);

d. Monitoring and response program(s);

e. Monitoring parameters;

f. Statistics;

g. Statistical tests;

h. Background determinations; and

i. Sampling schedule.

Additionally, the Discharger submitted (under separate cover), a "draft" liner system design report for construction of a new cell within currently permitted Landfill boundaries. The draft design report proposes providing the new cell with a composite liner system in conformance with Subtitle D prescriptive requirements.

The Discharger continues to work with the Board on implementation of most recent regulatory challenges.

SITE OPERATIONS

The City of Watsonville (Discharger) owns the Watsonville Class III Landfill (Landfill). Watsonville Public Works Department (Operator) operates the 100-acre Landfill located approximately three miles west of Watsonville and two miles east of Monterey Bay along San Andreas Road (See Attachment "A"). The Board began regulating the Watsonville site in 1969 with the adoption of "Regulations for Waste Discharge" on June 13, 1969. The current Waste Discharge Requirements were adopted on March 13, 1986.

The site is a Class III landfill suitable for receiving non-hazardous solid waste. The hours of operation at the site are 8 am to 4 pm Monday through Friday. Approximately 2,400 tons of waste per month are disposed at the site. Access to the site is restricted to city owned disposal vehicles.

The landfill is constructed by the area method. Refuse is placed in lifts averaging 10 feet in thickness, with side slopes of 3:1 (horizontal:vertical) or flatter. Refuse is spread and compacted on the sloped working face. The working face is provided with a six-inch-thick daily cover. Currently, Landfill operations are being conducted within the Phase I/II area (See Attachment "C") by placing refuse over existing refuse.

SITE CONDITIONS

The native soils at the Watsonville landfill site are Manresa Sands. The highly permeable, non-cohesive nature of this material has challenged the Discharger over the years. Erosion, infiltration, and leachate seeps continue to be problems at the site.

Currently the active fill area (Phase I/II) is unlined. The Phase I/II has a leachate collection and recovery system; however, a leachate seep at the toe of this Phase is present throughout the year. Efforts to control the seep have included the installation of a french drain system at the toe of the fill (completed in November 1993).

An impact to the uppermost discontinuous perched aquifer has been identified. Also, the regionally extensive Aromas aquifer has also shown limited impacts. Evaluation of these releases is ongoing.

Some corrective actions are being proposed. Diversion of waste to a lined phase followed by the final closure of Phase I/II will be considered a major corrective action effort. A highly impermeable cap will serve to minimize infiltration at the site thereby reducing leachate production. Gas extraction at the site is scheduled to begin early in 1994 with the installation of probes at Phase I/II and the perimeter. Gas extraction is often seen as a source control method for volatile organic compounds and will be considered a corrective action.

SITE DEVELOPMENT

The total Landfill facility consists of 100 acres, of which approximately 75 acres are permitted and available for non-hazardous solid waste disposal. The Landfill development plan divides the Landfill into five Phases as depicted on Attachment "C". Phase I and Phase II are managed as a single Phase and referred to as Phase I/II. Phase I/II will under go final closure when Phase III construction is completed. Phase III development should be completed in the Spring of 1995. Phases IV and V are planned for future landfilling. Current projections indicate 2.8 million cubic yards of remaining volume and 29 years of remaining life.

REVISED ARTICLE 5 REQUIREMENTS

The proposed Order includes a monitoring and reporting program in accordance with revised Article 5. The proposed monitoring program discusses, in detail, sampling and analytical methods, monitoring [illegible] and statistical analysis of sample data for detection and evaluation monitoring programs. The statistical and non-statistical methods incorporated into the Monitoring and Reporting Program are consistent with revised Article 5 performance goals and the State Board's July 16, 1992, "Boiler Plate for Waste Discharge Requirements Revisions" document. In general, the proposed Order requires:

a. Establishment of a financial assurance instrument (Special Revenue Fund) to demonstrate financial responsibility for initiating and completing corrective action of all known or reasonable foreseeable releases from the Landfill until the end of the Post Closure Maintenance Period.

b. Implementation of an improved groundwater detection monitoring program designed to provide the earliest reliable detection of a release from the Landfill.

c. Implementation of a formal surface water and vadose zone detection monitoring programs in accordance with revised Article 5 requirements.

d. Establishment of water quality protection standard (Standard). The Standard includes five parts:

1) a list of constituents of concern,

2) a concentration limit for each constituent of concern in each monitored medium,

3) a list of monitoring points,

4) a description of the Point of Compliance, and

5) the length of the compliance period.

e. Monitoring for a list of Monitoring Parameters which indicate whether detection program goals are being achieved concerning the Constituents of Concern.

f. Use of an appropriate statistical method for naturally occurring constituents of concern and monitoring parameters, and a non-statistical method for non-naturally occurring Constituents of Concern and Monitoring Parameter (volatile organic compounds).

g. [illegible] appropriate [illegible] method.

h. Background determinations

i. A sampling schedule.

The Discharger proposes an intra-well comparison statistical procedure for the site (i.e., future data from each monitored well are compared with it's own historical data). Statistical methods are proposed for analyses of naturally occurring constituents of concern and monitoring parameters (inorganics, etc.,). Also a non-statistical method was proposed to analyze non-naturally occurring constituents of concern and monitoring parameters.

The proposed methods are generally consistent with Article 5 and the State Board's "Boiler Plate WDR Revision" guidance document, which was utilized by Board staff to incorporate the statistical and non-statistical methods into the proposed Monitoring and Reporting Program. Board staff will use a State Board contracted statistician to review the proposal and to determine if the statistical and non-statistical proposal satisfies the performance standard of Article 5. After staff receive comments from the contracted statistician the Discharger will be notified of modifications and the Executive Officer will consider revising the Monitoring and Reporting Program as appropriate or if requested by the Discharger.

FINANCIAL ASSURANCES

The Discharger has proposed a financial assurance instrument (instrument) to cover the estimated Article 8 costs for a known or reasonably foreseeable release. The Discharger proposes to appropriate, by City Council Action, 1.8 million dollars to a restricted reserve in a "Pledge of Revenue Fund" Instrument. The amounts necessary to cover corrective action program costs, evaluation program costs, annual testing costs, operation and maintenance costs, and well abandonment and replacement costs were estimated and outlined in the "Cost Estimate Discussions" section which is presented in the support document for the August 1992 Proposed Monitoring Program.

The sum of the amounts necessary to adequately complete the following tasks represent the estimate of the coverage:

a. Carry out a three-dimensional delineation of a "worse case" release for each Constituent of Concern,

b. Prepare proposed concentration limits for each Constituent of Concern (clean-up levels for corrective action monitoring),

c. Prepare a final engineering feasibility study,

d. Propose a Corrective Action Program,

e. Purchase and install all needed equipment for implementing corrective action, and

f. Estimate the annual cost and likely duration of the Corrective Action Program.

Additionally, the amount of financial assurance necessary is based on site specific conditions including:

a. Effectiveness of a ground water monitoring system to reliably indicate a release at the earliest possible indication;

b. Existing containment systems (i.e., whether existing waste management units are equipped with adequate liner systems, and whether existing waste management units at final and/or intermediate elevations have been provided final and/or intermediate cover);

c. Whether a release is already occurring in any portion of the Landfill;

d. Beneficial uses of underlying and adjacent ground and surface waters;

e. Knowledge of hydrogeology;

f. Knowledge of geology;

g. Depth to ground water;

h. Distance from domestic supply wells;

i. Climatological conditions; and

j. Various other site specific factors.

Therefore, the proposed Order, requires appropriation of 1.8 million dollars to a restricted reserve in a "Pledge of Revenue Fund" to cover the costs to initiate and complete corrective action of the "worst case" reasonably foreseeable release.

SUBTITLE D

The Federal Subtitle D regulations were promulgated on October 9, 1991 and apply to Dischargers who own or operate landfills which accept municipal solid waste on or after October 9, 1991, regardless of whether or not a permit is issued. The majority of the Subtitle D regulations become effective on what is referred to as the "Federal Deadline", which is currently April 9, 1994 for this (<100 ton per calendar day) site. The Subtitle D regulations establish minimum national criteria for location, design, operation, clean-up, and closure of landfills. Also, under separate provisions of the Resource Conservation and Recovery Act, states may establish their own programs to implement the federal criteria. Once USEPA determines a state has developed an adequate program, USEPA's regulations will no longer apply. If a state fails to adopt acceptable regulations prior to the Federal Deadline, USEPA's regulations will apply until the state develops a program to attain USEPA approval for that program. Approved states can permit engineered alternatives to certain prescriptive standards contained in the Subtitle D regulations. Compliance also may be enforced in all states through citizen lawsuits.

The State Water Resources Control Board (State Board) and Regional Water Quality Control Boards have gained USEPA approval to implement the federal Subtitle D program.

The Order incorporates applicable Subtitle D requirements, particularly criteria pertaining to the composite liner system, final cover design, location, [illegible] prohibits any discharges of waste to any future Landfill expansion on or after the Federal Deadline, unless the discharge is to an area equipped with a composite liner system in accordance with prescriptive Subtitle D requirements.

PROPOSED ORDER

Proposed Order No. 94-020 maintains site classification as a Class III Landfill. As such, the Landfill is suitable for disposal of non-hazardous solid waste. The proposed Order contains specific prohibitions, discharge/closure specifications, water quality protection standard(s), provisions, and a monitoring and reporting program intended to mitigate or avoid impacts of the project on water quality. Additionally the proposed Order:

a. Regulates continued use of the Landfill's Active Fill Area.

b. Allows continued refuse placement over existing refuse within the Active Fill Area. Refuse placement over existing unlined refuse fill areas is only permitted to a maximum elevation of 525 feet.

c. Requires composite liner systems in all areas within the currently permitted Landfill (Active fill Area) boundaries, which have not received waste (e.g. the proposed new cell must be equipped with an approved Subtitle D composite liner system prior to refuse placement).

d. Incorporates all applicable revised Article 5 and Subtitle D monitoring requirements.

ENVIRONMENTAL SUMMARY:

These Waste Discharge Requirements contain prohibitions, discharge specifications, water quality protection standards, and provisions intended to protect the environment by mitigating or avoiding impacts of the project on water quality. These Waste Discharge Requirements are for an existing facility and as are exempt from provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.) in accordance with Title 14, California Code of Regulations, Chapter 3, Section 15301.

COMMENTS:

City of Watsonville/EMCON (city's consultant)

1. Order, Finding 25. - the Discharger requests the use of collected leachate on site.

Staff Response: Leachate may be used on-site provided conditions of the order are met. However, Discharge Specification No. B.7. of the draft order has been changed to improve its clarity. This change should reduce any confusion.

2. Order, Specification B.20. - The Discharger request that leachate disposal be addressed in this specification which governs gas condensate disposal at the site.

Staff Response: The proposed order has been changed as requested. Regulations for handling of gas condensate and leachate are identical.

3. Order, Specification B.16. - This Specification outlines the standard for liner systems at Landfills. The Discharger requests that Executive Officer approved alternative liners be allowed.

Staff Response: No changes were made in response to this comment. The specification already allows use of an alternative design with Executive Officer approval.

4. Order, Provision D.7. - This Provision outlines the signs and postings to be made at the entrance to publicly accessed landfills. The Discharger request the Provision be deleted since Watsonville Landfill access is restricted to City personnel.

Staff Response: Staff concurs. The Provision has been deleted from the proposed order.

5. Order, Provision D.28. - This Provision requires a periodic load checking program to be developed by the Discharger. The Discharger request this program be tailored to their restricted access situation.

Staff Response: Staff concurs. The Provision has been changed to reflect the site specific conditions.

6. Monitoring and Reporting Program (Program), Monitoring Parameters - Discharger request dissolved oxygen (DO) be omitted as a Monitoring Parameter due to it's inconclusive nature.

Staff Response: Staff will remove Dissolved Oxygen from the Monitoring Parameters list and replace the parameter with Chemical Oxygen Demand (COD). The COD parameter is currently analyzed for at the site and historical records do exist for on site wells.

7. Program, Statistical Methods - The Discharger requests including language in the order that allows the use of alternative, approved statistical procedures.

Staff Response: Staff concurs. The submission of alternative site specific statistical methods is encouraged. The requested change is now included in the program as requested.

8. Program, Monitoring Period - The Discharger request the Monitoring Period reporting dates be moved back by one month to allow offset of reporting demands.

Staff Response: Monitoring reports are due thirty (30) days following the end of the monitoring period. The proposed monitoring program has been changed as requested.

State Water Resources Control Board -

1. Order, Specification B.7 - The State Board recommends that leachate and condensate usage over areas underlain by waste be restricted to only those areas which have a composite liner.

Staff Response: Staff concurs. The condition requested is already specified on Prohibition A.19.

2. Order, Specification B.41.b. - The State Board recommends the language of this Specification be changed to clarify the need for composite covers over landfill areas that have composite liners.

Staff Response: Staff concurs. The proposed order has been changed to be more explicit. The proposed order now specifies the final cover must not be more permeable than the underlying liner in order to prevent the "bathtub" effect.

3. Monitoring and Reporting Program (Program), Statistical and Non-statistical Analysis of data - The State Board recommends the use of a Dr. Willits approved statistical program.

Staff Response: Staff concurs. The statistical portion of the Program in the proposed order has been replaced with the statistics as outlined in Order 93-84.

California Integrated Waste Management Board

Jeff Hackett of the Compliance Division commented verbally to Staff. Mr. Hackett's comments were of typographical and wording nature. The comments were incorporated.

California Coastal Commission - No comments.

Association of Monterey Bay Area Governments (AMBAG) - No comments.

State Department of Fish and Game - No comments.

Santa Cruz County Health Department - No comments.

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5427

ORDER NO. 94-020

WASTE DISCHARGE REQUIREMENTS FOR CITY OF WATSONVILLE CLASS III LANDFILL SANTA CRUZ COUNTY

The California Regional Water Quality Control Board, Central Coast Region (hereafter "Board"), finds that:

1. The City of Watsonville Public Works Department (hereafter "Discharger") owns and operates the City of Watsonville Class III Landfill (hereafter "Landfill").

2. The 103 acre Landfill is located in the coastal region of Santa Cruz County, approximately 1.5 miles East of Monterey Bay, 3.5 miles West of the City of Watsonville. The Landfill is located in Sections 2 and 3, Township 12 South, Range 1 East, Mount Diablo Base and Meridian, Santa Cruz County, as depicted on Attachments A, B, and C included as part of this Order.

3. These Waste Discharge Requirements (Requirements) are being revised/updated to incorporate criteria applicable to solid waste disposal sites, particularly:

   a. criteria established in California Code of Regulations, Title 23, Division 3, Chapter 15 (Chapter 15), including Article 5, pertaining to landfill water quality monitoring and response programs, as amended July 1, 1991;

   b. criteria established in California Code of Regulations, Title 14 (Title 14), Division 7, Chapter 3, Article 7.8; Chapter 5, Article 3.4; and Chapter 5, Article 3.5, pertaining to Closure and Post-Closure Regulations; and

   c. criteria established in 40 Code of Federal Regulations, Parts 257 and 258 Solid Waste Facility Disposal Criteria, Final Rule (Known as "Subtitle D"), as promulgated October 9, 1991.

4. This Order revises/updates and replaces Order 87-35, as adopted on March 13, 1987. In addition this Order is intended to cover all items of Order 93-84 adopted by the Board on October 8, 1993. Implementation of applicable revised Article 5 monitoring requirements and various other pertinent landfill changes, including compliance with other more stringent state (Title 14) and federal (Subtitle D) landfill regulations, will bring the Landfill into compliance with current landfill requirements.

5. Land use within 1000 feet of the Landfill includes; agricultural, institutional, and solid waste disposal. The landfill is bordered by the

Gallighan Slough to the north, agricultural land to the south and west, and the Southern Pacific rail lines on the east and north. The County of Santa Cruz operates the Buena Vista landfill which is located east of the Watsonville landfill across the Southern Pacific track.

6. The site is located on a hillside which slopes northeastward and eastward toward Gallighan Slough. Elevations at the site (referenced to mean sea level) are 260 feet near the southern boundary, 325 feet at Phase I/II (maximum elevation), and 100 feet on the northern boundary.

7. The Discharger's data demonstrate natural geologic materials between the base of the waste management unit and ground water cannot ensure that degradation of beneficial uses of ground water beneath or adjacent to the Landfill will not occur.

8. The site is underlain by Manresa dune sands which overlie fluvial terrace deposits made up of interbedded clays, silts, and sands. Below this lies Aromas Sands Formation of up to 800 ft. of dune sands and interbedded fluvial sands, gravels, silts, and clays. All three units are of the Quaternary period. Tertiary Purisima Formations underlie the Aromas Formation. Although parts of the Purisima and Aromas formations have been faulted and folded by activity, the bulk of the Quaternary section is unaffected.

9. Seismic studies in the area show the Northern San Andreas fault, nine miles from the site, with a maximum probable earthquake of Richter magnitude 8.25, would yield the highest peak horizontal acceleration at the site. A maximum peak ground surface acceleration of approximately 0.58g is predicted as a result of this maximum probable earthquake. The fault nearest the site is the Zayante-Vergales (Z-V) which lies one mile from the site. The maximum probable earthquake along the Z-V is estimated at a Richter magnitude of 7.1. The estimated horizontal surface acceleration, from this event, is 0.46g.

10. The landfill lies within the Pajaro River Valley. Surface drainage is diverted around the landfill to Gallighan Slough. Gallighan Slough flows in a southeasterly direction until it eventually reaches Watsonville Slough. Watsonville Slough empties into the mouth of the Pajaro River at the Pacific Ocean. The average annual rainfall at the site is 21.5 inches. Refuse disposal areas do not encroach within the 100-year flood plain and are above any inundation caused by a 100-year flood.

11. Three aquifer systems are located below the landfill site. The uppermost aquifer is found in the perched terrace deposits. The terrace deposits are limited in lateral extent and thickness. Ground water flow within the terrace deposits is typically toward the North with a gradient of approximately 0.02 ft/ft. The Aromas Formation is the middle aquifer and is the principal water bearing formation in the site vicinity. Well water levels at approximately sea level correspond to the approximate geologic contact between the terrace deposits and the underlying Aromas sands formation. Ground water in the Aromas Formation flows Northeast with a gradient of approximately 0.002 ft/ft. The deepest aquifer is found in the Purisima formation. The use of this aquifer is limited since the Aromas formation yields ample water for area needs. Ground water in the deeper Purisima flows east toward the valley floor.

12. Wells MW2, MW5, MW8, MW9, MW10, MW11, MW12, MW13A, and MW14 are screened in the perched aquifer. Ground water flows readily between the perched and Aromas aquifers. Wells MW1, MW3, MW4, and MW6 are screened in the Aromas aquifer. The Purisima aquifer is not monitored.

13. Approximate locations of 23 documented groundwater wells within a one-mile radius of the site are exhibited on Attachment B. The nearest domestic well to the site is located 1/2 southeast at a private residence.

14. Ground water in outlying areas is generally of good quality for domestic and agricultural uses. Average Aromas formation ground water quality, using MW-1 and MW-3 histories, is as follows:

    Electrical Conductivity @ 780 (umhos/cm)
    pH @ 7.07
    Alkalinity (as CaCO3) @ 315 (mg/l)
    Chemical Oxygen Demand @ 8.0 (mg/l)
    Total Dissolved Solids @ 460 (mg/l)

15. Trace volatile organic compounds (volatiles) have been consistently detected in two ground water monitoring wells in the terrace deposits. Some trace volatiles were also found in one well monitoring the Aromas Formation. As a result, the Discharger conducted an investigation to characterize the vertical and lateral extent of impacted ground water. The Discharger submitted a May 1993 "Site Characterization Report". Based on Board staff review, the Discharger is currently conducting additional investigations and will resubmit the Site Characterization Report based on additional findings. A subsequent "Feasibility Study" for corrective action is anticipated.

16. The Water Quality Control Plan, Central Coast Basin (Basin Plan), was adopted by the Board on November 17, 1989, and approved by the State Water Resources Control Board on August 16, 1990. The Basin Plan incorporates statewide plans and policies by reference and contains a strategy for protecting beneficial uses of State Waters. This Order implements the water quality objectives stated in that Plan.

17. Present and anticipated beneficial uses of surface waters, specifically the Gallighan and Watsonville Sloughs, downgradient of the discharge include:

    a. non-contact water recreation;
    b. wildlife habitat;
    c. ground water recharge; and
    d. warm fresh water habitat.

18. Present and anticipated beneficial uses of ground water in the vicinity of the discharge include:

    a. municipal and domestic supply;
    b. agricultural supply.

19. The Landfill operates under various permits, other than these Waste Discharge Requirements, including;

    a. Solid Waste Facilities Permit No. 44-AA-002 issued May 19, 1978 by the California Integrated Waste Board.
    b. Minor Land Division/Coastal Zone/Riparian Exception Permit No. 90-0123 issued July 17, 1990 by the County of Santa Cruz.
    c. Coastal Development Permit No. A-3-SCO-90-98 and A-3-SCO-90-101 issued July 17, 1990 and February 5, 1991, respectfully, by the California Coastal Commission.

20. The existing landfill covers approximately 103 acres of which approximately 65 acres are available for landfilling. The landfill receives approximately 230 cubic yards of waste per calendar day (80 tons) from a service population of about 35,000. Waste disposal at the site is performed by the area method. Waste is placed in lifts averaging 10 feet in thickness, with maximum side slopes of 3:1 (horizontal: vertical). Approximately 20 acres (Phase I/II) is under active filling or has been filled. Phase III (10 acres) development has begun. The remaining 35 acres will be developed in two Phases (IV & V) as Phase III nears capacity. Phases I and II are unlined. For practical purposes these two phases are treated as one fill area and will be referred to as Phase I/II. All future phases will be lined and equipped with leachate collection systems. Phase I/II is currently projected to reach capacity in early 1995 at which it will be closed. Phase III is being constructed in accordance with all current regulatory requirements. The projected

capacity of Phase III is 552,000 cubic yards, which results in a projected 10.1 year service life (until 2005). Phases IV and V have a projected capacity of 1.7 million cubic yards and will add a projected 18 years to the Landfill service life (until 2023). Current plans indicate the landfill has a remaining solid waste capacity of 2.8 million cubic yards.

21. This Landfill meets the criteria of the California Code of Regulations, as stated in Chapter 15 for classification as a Class III landfill suitable to receive non-hazardous solid waste. This Order implements the prescriptive standards and performance goals of Chapter 15, as adopted by the State Water Resources Control Board on October 18, 1984, and as amended on July 1, 1991.

22. Wastes containing greater than one percent (>1%) friable asbestos are classified as hazardous under California Code of Regulations, Title 22. Since such wastes do not pose a threat to ground water quality, Section 25143.7 of the Health and Safety Code permits its disposal in permitted landfills, providing waste discharge requirements specifically allow the discharge and the wastes are handled and disposed in accordance with other applicable State and Federal statutes and regulations.

23. Use of the Landfill is restricted to City employees or persons authorized by the Landfill operator. Screening of incoming waste is accomplished on site and at the point of collection. Collection personnel are trained in hazardous waste recognition.

24. Currently leachate is collected by two gravity flow systems. The first consists of 2300 linear feet of four inch diameter perforated PVC piping arranged along fill benches and fill perimeter. The collected leachate is stored on site in a 5000 gallon steel tank. The second system consists of a forty foot wide French drain system located at the toe of Phase I/II. The system was installed as a seep correction measure in the Fall of 1993. This system drains to a separate storage tank. Both tanks are periodically drained to a collection vehicle.

25. Collected leachate is hauled to the City Wastewater Treatment Plant or used on site. The leachate is tested for volatile and semi-volatile organics and metals in accordance with the attached Monitoring and Reporting schedule. Leachate analysis has shown the leachate is affected by the refuse but is not hazardous.

26. The separation between waste and ground water in Phase I/II is a minimum of 90 feet on the north edge of the site (near MW2). Construction plans for Phase III indicate a minimum separation of approximately 120 feet. Conceptual plans for Phases IV, and V show a minimum separation of approximately 30 feet.

27. The Discharger submitted a Proposed Monitoring and Reporting Program dated August 1992 in compliance with Chapter 15 monitoring program submittal requirements.

28. The Discharger submitted a draft Phase III Construction and Phases IV and V Conceptual Design Plan to the Board in September of 1992. A final report is expected by June 1994.

29. A draft of the Final (Phases I and II) and Preliminary (Phases III, IV, and V) Closure and Postclosure Maintenance Plan was submitted to the Board in June 1993. A final report is expected by June 1994.

30. The final cover of the site will vary across the different Phases as follows;

    Phase I/II:

    a minimum 2-foot-thick foundation soil layer;

    a 1.5-foot-thick low permeability soil layer ($K \leq 1X10^{-6}$ cm/sec);

    a minimum 1-foot-thick vegetative soil layer.

    Phases III, IV, and V:

    a minimum 2-foot-thick foundation soil layer;

    1.5-foot-thick low permeability soil liner ($k \leq 1x10^{-6}$ cm/sec);

a geomembrane liner;

a minimum 1-foot-thick vegetative soil layer.

31. Final closure plans for Phases III, IV, and V will be submitted to the Board for approval at least 240 days prior to beginning any Landfill closure activities.

32. In 1990, the Discharger implemented a wood waste and metal recovery program. Wood wastes are stockpiled and removed to the Buena Vista Landfill. Metals wastes are stored in containers, and removed from the Landfill to be recycled. Plans show the development of a yardwaste composting facility in the area of the Phased IV module.

33. During the Summer of 1994 the Discharger plans the installation of a methane gas recovery system for the Landfill. The system will include:

    a. vertical gas collection pipes in Phases I and II;

    b. horizontal gas collection pipes in Phases III, IV, and V;

    c. condensate collection and storage;

    d. landfill gas disposal by the use of a flare.

34. Due to revisions of Article 5, of Chapter 15, the Discharger submitted an August, 1992 Report to update waste discharge requirements for the Landfill, including a monitoring and reporting program. It includes proposals for an improved ground water detection monitoring program, surface and vadose zone monitoring programs and the establishment of a financial assurance instrument to cover all expenses related to future corrective action costs.

35. On October 9, 1991, the Environmental Protection Agency (EPA) promulgated regulations pertaining to solid waste disposal facilities known as 40 Code of Federal Regulations, Parts 257 and 258 Solid Waste Disposal Facility Criteria, Final Rule (also known as Subtitle D). Subtitle D implementation/applicability is as follows:

    a. Municipal Solid Waste Landfills with waste discharge requirements that stopped receiving waste on or before October 9, 1991 are exempt from Subtitle D except for monitoring requirements and deed restrictions.

    b. Units that receive waste on or after October 9, 1991, but stop prior to October 9, 1993, must meet only the final cover requirements specified in Section 258.60(a).

    c. Units that receive waste on or after October 9, 1993 must comply with all requirements of Subtitle D.

36. As of October 9, 1993, Subtitle D regulations have been self-implementing. California has received US. EPA authorization (become an "Approved" State) to implement the federal Subtitle D regulations. All Part 258 requirements are effective, except subpart G (financial assurance requirements) which become effective six months after the Federal Deadline (currently this deadline is April 9, 1994).

37. Discharge of waste is a privilege, not a right, and authorization to discharge waste is conditioned upon the discharge complying with provisions of Division 7 of the California Water Code and with any more stringent limitations necessary to implement the Basin Plan, to protect beneficial uses, and to prevent nuisance. Compliance with this Order should assure conditions are met and mitigate any potential changes in water quality due to the project.

38. These Waste Discharge Requirements contain prohibitions, discharge specifications, water quality protection standards, and provisions intended to protect the environment by mitigating or avoiding impacts of the project on water quality. These Waste Discharge Requirements are for an existing facility and as are exempt from provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.) in accordance with Title 14, California Code of Regulations, Chapter 3, Section 15301.

39. On November 24, 1993, the Board notified the Dischargers and interested agencies and persons of its intention to update the waste discharge requirements for the discharge and has provided them with a copy of the proposed order and an opportunity to submit written views and comments.

40. After considering all comments pertaining to this discharge during a public hearing on February 11, 1994, this Order was found consistent with the above findings.

IT IS HEREBY ORDERED pursuant to authority in Section 13263 of the California Water Code, the City of Watsonville, its agents, successors, and assigns may discharge wastes at the City of Watsonville Class III Landfill, providing compliance is maintained with the following:

(Throughout these requirements, footnotes are listed to indicate the source of requirements specified. Requirement footnotes are as follows:

a= California Code of Regulations, Title 23, Chapter 15
b= California Code of Regulations, Title 14
c= Basin Plan
d= Code of Federal Regulations, Part 257 and 258 (Subtitle D)
e= California Water Code

Requirements without footnotes are based on professional judgment.

A. DISCHARGE PROHIBITIONS

General Prohibitions

1. Discharge of waste to areas outside the permitted landfill area as identified in Attachment "C", is prohibited.

2. Discharge of wastes within "currently permitted landfill area limits", where refuse placement has not occurred is prohibited; unless a composite liner system, as described in Specification 36, is provided.[d]

3. Discharge of hazardous waste, except for waste that is hazardous due only to its asbestos content, is prohibited. For the purposes of this Order, the terms hazardous waste is as defined in Chapter 15.[a]

4. Discharge of designated waste is prohibited except where the Discharger demonstrates to the Executive Officer's satisfaction that waste constituents present a lower risk of water quality degradation than indicated by this classification. For the purpose of this order the term "designated waste" is defined in Chapter 15.[a]

5. Discharge of "liquid wastes" or "semi-solid wastes" (i.e., wastes containing less than 50 percent solids by weight), other than leachate and gas condensate as described in Specification B.20 and dewatered domestic sludge is prohibited. Exemptions to discharging wastes containing less than 50% solids by weight may be granted by the Executive Officer if the Discharger can demonstrate the discharge will not exceed the moister-holding capacity of the Landfill, either initially of a result of waste management operations, compaction, and/or settlement.[a]

6. Discharge of dewatered sewage or water treatment sludge, which contains less than 50% solids by weight to any Landfill areas, shall meet conditions identified in Discharge Specification B.17.[a]

7. Discharge of waste to ponded water from any source is prohibited.[a]

8. Ponding of liquids over solid wastes is prohibited.[a]

9. Discharge of leachate or gas condensate containing hazardous concentrations of constituents is prohibited.[a]

10. Discharge of wastes that would reduce or impair the integrity of containment structures is prohibited.[a]

11. Discharge of wastes which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:

    a. require a higher level of containment than provided by the Landfill,

    b. are restricted hazardous wastes, or

    c. impair the integrity of containment structures

    is prohibited.[a]

12. Discharge of wastes within five (5) feet of the highest anticipated water table elevation, including the capillary fringe, is prohibited. If excavations encounter ground water or come within five (5) feet of ground water, native soil shall be replaced and compacted to satisfy this specification.[a]

13. Discharge of waste within 50 feet of the property line, 100 feet of surface waters, or 150 feet of any unsealed or domestic water supply well is prohibited.

14. Discharge of solid or liquid waste or leachate to surface waters, drainage way(s), or ground water, is prohibited.

15. Discharge of solid or liquid waste containing free liquid or moisture in excess of the waste's moisture holding capacity is prohibited. Waste must pass the paint filter test to determine if free liquids are present.[a,d]

16. Discharge of waste solvents, dry cleaning fluids, paint sludge, pesticides, phenols, brine, and acid and alkaline solutions is prohibited.[a]

17. Discharge of oils or other liquid petroleum products is prohibited.

18. Discharge of chemical and biological warfare agents is prohibited.

19. Discharge of leachate or landfill gas condensate to any landfill waste management unit is prohibited, unless:

    a. The landfill gas condensate or leachate is being returned to the landfill waste management unit that produced it; and

    b. The portion of the landfill to which these materials are discharged is equipped with a containment system as outlined in Specification B.36.

B. DISCHARGE SPECIFICATIONS

General Specifications

1. The Discharger shall implement the attached Monitoring and Reporting Program No 94-020 in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the Unit, or any unreasonable impairment of beneficial uses associated with (caused by) discharges of waste to the Unit.[a]

2. Discharge of waste shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored medium at any Monitoring Point assigned to Detection Monitoring pursuant to the current version of the Monitoring and Reporting Program.

3. Discharge of waste shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of pollution, or nuisance to occur, as indicated by the most appropriate statistical [or non-statistical] data analysis method and re-test method listed in the Monitoring and Reporting Program Part II.a,f

4. Discharge of waste shall neither cause nor contribute to the pollution of ground water via the release of waste constituents in either liquid or gaseous phase.

5. Discharge of waste shall neither cause nor contribute to any surface water pollution or nuisance, including, but not limited to:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Increases in bottom deposits or aquatic growth;

   c. An adverse change in temperature, turbidity, or apparent color beyond natural background levels;

   d. The creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. The introduction or increase in concentration of toxic or other pollutants/contaminants resulting in unreasonable impairment of beneficial uses of waters of the State.

6. The discharge of waste shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Landfill if such waste constituents could migrate to waters of the State in either liquid of gaseous phase and cause a condition of pollution or nuisance.

7. With written approval of the Executive Officer, water (including non-hazardous and non-designated leachate and gas condensate) used during disposal site operations shall be limited to the minimal amount necessary for dust control, construction (soil compaction), and vegetation establishment/irrigation purposes. The Discharger shall minimize the infiltration of rainwater and prevent infiltration of leachate and gas condensate into areas containing refuse, except as allowed by Prohibition A.19.

8. Disposal site operations shall not be a source of odor nuisance.

9. The Discharger shall prevent formation of a habitat for carriers of pathogenic microorganisms.[e]

10. The handling and disposal of asbestos containing wastes shall be in accordance with all applicable federal, state, and local statutes and regulations.

11. Ash wastes may be discharged in the Landfill only when chemical analyses demonstrate to the Executive Officer's satisfaction that the waste is non-hazardous.[a]

12. Wastes discharged in violation of these requirements and after the adoption date of this Order, shall be removed and relocated.

13. All refuse material that is wind-blown outside the active Landfill area shall be collected regularly and disposed in the Landfill. If wind-blown litter becomes a continuing problem, a containment barrier (additional screens and/or fences) shall be constructed to prevent spreading of refuse.

14. The Discharger shall obtain and maintain a Regional Water Quality Control Board approved Financial Assurance Instrument (Instrument) to demonstrate financial responsibility for initiating and completing corrective action of all known or reasonably foreseeable releases from the Landfill until the end of the Post-Closure Maintenance Period, pursuant to Chapter 15 regulations. The Instrument shall be legally valid, binding and enforceable under State and Federal law.[a]

15. A program for periodic intake load-checking shall be maintained to ensure that 'hazardous waste,' 'designated waste' and 'radioactive waste' are not discharged at this Landfill.[a]

16. The Discharger shall operate the Landfill in conformance with the most recently Executive Officer approved Master Plan, Operations Plan, and/or Site Development Plan, except where the Plan(s) conflict with this Order. In the event of conflict, this Order shall govern in cases where it is most restrictive. Any changes to the Plan(s) that may affect compliance with this Order must be formally approved in writing by the Executive Officer.[a,f]

17. Discharge of dewatered sewage sludge or water treatment sludge to the Landfill shall meet all of the following criteria:

    a. dewatered domestic sludge which is utilized beneficially as soil amendment to promote vegetation over intermediate or final cover may be allowed with written Executive Officer approval;

    b. sludge discharged into the Landfill shall be only to Units equipped with a dendritic/blanket-type leachate collection and removal system or acceptable equivalent immediately above the liner. However, if the sludge contains greater than 50% solid by weight, a leachate collection removal system may not be required depending on site specific conditions and upon Executive Officer approval;

    c. a daily minimum solid waste-to-sludge ratio of 5 to 1 by weight shall be maintained to ensure co-disposal will not exceed the moisture-holding capacity of the non hazardous solid waste. The actual ratio required by the Regional Board shall be based on site-specific conditions;

    d. primary and mixtures of primary and secondary sludge shall contain at least 20 percent solids by weight; and

    e. secondary sewage sludge or water treatment sludge shall contain at least 15 percent solids by weight.

18. Waste shall not be discharged to a wetland, as defined in 40 Code of Federal Regulations, Section 232.2(r), or to any portion thereof, unless the Discharger successfully completes all demonstrations pursuant to 40 Code of Federal Regulations, Section 258.12(a). Such demonstration is subject to approval of the Executive Officer.[d]

19. Refuse shall be covered daily by at least six inches of cover material or, if allowed by the Local Enforcement Agency, meet Performance Standards of the California Code of Regulations, Title 14, Section 17683. Cover shall promote lateral runoff of rainfall away from all active disposal area. Upon Executive Officer approval, alternative daily cover materials may be utilized. Long-term alternatives to the daily cover requirements must satisfy the alternative daily cover procedures and be approved by the California Integrated Waste Management Board.a,b

Site Specific General Specifications

20. Condensate or leachate collected from a Waste Management Unit may be discharged to that Waste Management Unit if the following conditions are met:

    a. the Landfill condensate or leachate shall be returned to the appropriately lined portion of the Landfill that produced it. The containment system must meet the performance standard of Discharge Specification B.36. of this Order.

    b. condensate or leachate shall have no chemical additives which could adversely affect containment features, and shall consist only of water and liquid contaminants removed from the gas recovered at a Waste Management Unit,

    c. condensate or leachate shall be non-hazardous, and

    d. condensate or leachate is discharged only in compliance with this Order.

Wet Weather

21. By **October 1 of each year**, all necessary runoff diversion and erosion prevention measures shall be implemented. All necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the Landfill and to prevent surface drainage from contacting or percolating through wastes.[a]

22. All landfill surfaces and working faces shall be graded and operated to minimize rainfall infiltration into wastes, to prevent ponding of water, and to resist erosion. Positive drainage to divert rainfall runoff from areas containing waste shall be provided.

23. Drainage ditches crossing over landfill areas shall be lined with material which provides an effective field permeability of 1.0×10^{-6} cm/sec or less. If material other than clay or synthetic is used, data must be provided to, and approved by, the Executive Officer. The drainage facilities shall be designed and constructed to accommodate anticipate precipitation and peak surface runoff flows from a 100-year, 24-hour event.

24. Water collected in any storm water catchment basin or a site water treatment facility may be used in minimum amounts necessary for dust-control, compaction, or irrigation of cover vegetation provided none of the water infiltrates past the root zones of vegetation or past a depth where effective evaporation can occur.

25. Waste containment barriers shall be maintained to ensure effectiveness.[a,b]

26. The Discharger shall monitor potential releases from the site related to surface water runoff by complying with all NPDES Stormwater Monitoring Program requirements.

27. Storage facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm, or otherwise managed, to maintain the design capacity of the system.[a]

28. A minimum of two feet of freeboard shall be maintained in all leachate containment ponds. Leachate ponds shall be designed to avoid overtopping as a result of seiches.[a]

29. If adequate soil cover material is not accessible during inclement weather, then such material shall be stockpiled during favorable weather to assure year-round compliance.[a]

30. Throughout the rainy season of each year, a minimum one (1) foot thick compacted soil cover designed and constructed to minimize percolation of precipitation through wastes, shall be maintained over the entire active waste management unit. The soil cover shall be in-place by **October 1 of each year**. The only exception to this is the working face. The working face shall be confined to the smallest area practicable based on the anticipated quantity of waste discharged and required waste management facility operations. Landfill areas which have been provided an Executive Officer approved vegetative layer as of the adoption date of this Order, shall not be required to satisfy this requirement. Based on site specific conditions, the Executive Officer may require a thicker soil cover for all portions of the active waste management unit prior to the rainy season.

31. By **October 1, of each year**, vegetation shall be planted and maintained over all Landfill slopes within the entire Landfill area, except the working face, to prevent erosion. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness. Upon written Executive Officer approval, non-hazardous sludge may be conditionally utilized as a soil amendment to promote vegetation. Soil amendments and fertilizers (including wastewater sludge) used to establish vegetation shall not exceed the vegetation's agronomic rates (i.e., annual nutrient needs), unless approved by the Executive Officer.

Design Criteria

32. Waste management units, containment structures, and drainage facilities shall be designed, constructed and maintained to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, overtopping, and damage due to natural occurrences (e.g., floods with a predicted frequency of once in 100 years, the maximum probable earthquake, and severe wind storms).[a]

33. Waste management units, containment structures and drainage facilities shall be designed and constructed under the direct supervision of a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards and performance goals of all state and federal landfill regulations including, but not limited to Chapter 15, Title 14 (of the California Code of Regulations) and 40 Code of Federal Regulations, Parts 257 and 258, prior to waste discharge.[a,d]

34. All Landfill facilities shall be designed and constructed to minimize damage during the "maximum probable earthquake" to the graded foundation and to structures which control leachate, surface drainage, erosion, and gas. The operator must demonstrate that all containment structures, including liners, leachate collection and removal systems, and surface water control systems are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The owner or operator must place the demonstration in the operating record and notify the Executive Officer that it has been placed in the operating record.

35. The Discharger shall ensure the integrity of the final slopes under both static and dynamic conditions considering seismic acceleration at least from the maximum possible earthquake. The slope of those portions of the fill which will be the final exterior surface shall be developed in accordance with California Code of Regulations, Title 14, Division 7, Chapter 3, Article 7.8 and Title 23, Division 3, Chapter 15, Subsection 2581, namely;

    a. All slopes shall have a minimum of one 15-foot wide bench for every 50 feet of vertical height.

    b. Slopes shall not be steeper than a horizontal to vertical ratio of 1.75:1 (57%).

    c. Slopes steeper than a horizontal to vertical ratio of 3:1 (33%) shall be supported by a slope stability analysis report approved by the Executive Officer.

    d. Slopes with grades less than 3% require the approval of the Executive Officer.[b]

36. Wastes shall not be discharged to areas outside the footprint area which had not received waste as of October 9, 1993, unless the discharge is to an area equipped with a containment system, which meets either a. or b. below:

    a. A composite liner and a leachate collection and removal system. The liner must consist of two components:

        1) Lower Component: A minimum two-foot layer of compacted soil with a hydraulic conductivity of no more than $1X10^{-7}$ cm/sec (0.1 feet/year); and

        2) Upper Component: A minimum 40-mil flexible membrane liner or a minimum 60-mil high density polyethylene. The flexible membrane liner component must be installed in direct and uniform contact with the compacted soil component; or

    b. An engineered alternative composite liner design. Engineered alternative designs must satisfy the performance criteria in 40 Code of Federal Regulations, Section 258.40(a)(1) and (c), and satisfy the criteria for an engineered alternative to the above Prescriptive Design, as provided by Title 23, California Code of Regulations, Section 2510 (b), where the performance of the alternative composite liners' components, in combination, equal or exceed the waste containment capability of the Prescriptive Design.[d]

37. Permeability determinations shall be as specified in Article 4 of Chapter 15. Permeabilities specified for containment structures other than cover shall be relative to the fluids, including waste and leachate, to be contained. Permeabilities specified for cover shall be relative to water. Permeabilities shall be determined primarily by appropriate field test methods in accordance with civil engineering practice (sealed double ring infiltrometer test is required). The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. Appropriate compaction tests may be used in conjunction with laboratory permeability tests to determine field permeabilities as long as a reasonable number of field permeability tests are also conducted.[a]

38. Leachate collection and removal systems shall be installed immediately above the liner and shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the Unit.[a]

39. The leachate collection and removal system shall:

    a. be designed and constructed to prevent the development of hydraulic head on the liner;

    b. be designed and constructed in a manner which allows for periodic system inspections;

    c. be designed and operated to function with out clogging through the scheduled closure of the waste management unit and during the post-closure maintenance period.

    d. convey to a sump, or other appropriate collection area, all leachate which reaches the liner. The depth of fluid in any collection sump shall be kept at the minimum needed to ensure efficient pump operation.[a]

Site Specific Design Criteria

Closure

40. Final Landfill configuration shall conform to the contours delineated in the most recent version of the Landfill Development Plan.

41. Areas at final elevations shall be covered with final cover pursuant to Section 2581 of Chapter 15 including from bottom to top:[a]

    a. at least a two foot foundation layer placed over waste;

    b. 1) for landfills which have not been equipped with a Subtitle D composite liner system, a low permeability geomembrane or compacted clay with an in-place permeability $1X10^{-6}$ cm/sec, or no faster than the permeability of underlying natural geologic materials, which ever is less, or

    2) for landfills which have been equipped with a Subtitle D composite liner system, a low permeability geomembrane or compacted clay with an in-place permeability of $1X10^{-7}$ cm/sec, or no faster than the permeability of the underlying Subtitle D composite liner system; and

    c. at least one foot of soil capable of supporting vegetation, resisting erosion, and protecting the underlying low permeability layer.

    Hydraulic conductivity of a low-permeability soil layer shall be determined by both laboratory and in-place field testing. Permeability determinations for cover materials shall be as specified in Article 4 of Chapter 15 and shall be appended to the final closure and post-closure maintenance plan. Construction methods and quality assurance procedures shall be submitted to the Executive Officer, and shall insure all parts of the low-permeability layer meet the hydraulic conductivity and compaction requirements. The final cover shall be graded to a slope of at least 3%, but not more than 10% unless adequate erosion control measures are implemented and approved by the Executive Officer.

42. All landfill areas which have not reached final fill elevation, but will remain inactive over one-year, must be provided with an Executive Officer approved long-term intermediate cover. The thickness and permeability of the long-term intermediate cover shall be based primarily on site specific conditions including, but not limited to length of exposure time; volume of underlying material, permeability, thickness and composition of existing cover; amount of yearly rainfall; depth to ground water; beneficial uses of underlying ground water; site specific geologic and hydrogeologic conditions; and effectiveness of existing monitoring system.

43. The Discharger shall implement final closure activities as the site operation progresses (e.g., within 30 days after a particular Unit or portion of a Unit reaches final fill elevation, final closure cover must be provided), in accordance with requirements consistent with the closure of the entire site, as approved by the Executive Officer and the California Integrated Waste Management Board in accordance with the most recently approved closure plan.[a,b]

44. All closed landfill waste management units shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-

closure maintenance period. Cumulative waste subsidence and settlement of areas where final cover is installed, shall be documented in the annual report.[a]

45. Partial closure shall be accomplished by implementing closure activities, including but not limited to: placement of final cover, final grading, maintenance, revegetation, and installation of environmental monitoring control systems consistent with the closure of the entire site. Units closed in accordance with a Closure Plan approved by the Executive Officer and the California Integrated Waste Management Board, are not subject to future regulatory changes, unless monitoring data indicate impairment of beneficial uses of ground water.[a,b]

46. Alternative intermediate and final cover designs may be considered for Executive Officer approval, if such designs provide equivalent reduction in infiltration and protection from wind and water erosion.[a,b]

47. Methane and other landfill gases shall be adequately vented, removed from the Landfill, or otherwise controlled to prevent the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to migration through the Vadose (unsaturated) zone. Discharger shall comply with gas control requirements pursuant to Title 14 regulations.[a,b]

48. The closure of Phase I/II shall be completed 120 days after the diversion of waste to Phase III.

Reporting

49. Discharger shall notify Board staff, within 24 hours by telephone and within seven days in writing, of any noncompliance potentially or actually endangering health or the environment. Any noncompliance which threatens the landfill's containment integrity shall be promptly corrected. Correction schedules are subject to approval of the Executive Officer, except when delays will threaten the environment and/or the Landfill's integrity (i.e., emergency corrective measures). Corrections initiated prior to Executive Officer approval shall be so stated in the written report. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times or anticipated duration; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. This provision includes, but is not limited to:

    a. violation of a discharge prohibition;

    b. violation of any treatment system's discharge limitation;

    c. slope failure; and

    d. leachate seep occurring on, or in proximity to, the Landfill.[a]

50. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule, shall be submitted within 14 days following each scheduled date unless otherwise specified within the Order. If reporting noncompliance, the report shall include a description of the reason, a description and schedule of tasks necessary to achieve compliance, and an estimated date for achieving full compliance. A second report shall be submitted within 14 days of achieving full compliance.

51. Reports shall be submitted in advance of any planned changes in the permitted facility, or any activity which could potentially or actually result in noncompliance.

C. WATER QUALITY PROTECTION STANDARDS

Water Quality Protection Standard (WQPS or Standard)

1. The five parts of the Water Quality Protection Standard [Standard] are as follows:

    a. **Constituents of Concern**

    The Constituents of Concern for water bearing media [i.e., ground water, surface water, and soil pore liquid]; and soil pore gas, include those listed in Parts I.D.8 and

I.D.9, respectively, of the attached Monitoring and Reporting Program (MRP) No. 93-020.

b. **Concentration Limits**

For each Monitoring Point assigned to the Detection Monitoring Program [MRP No. 94-20], the Concentration Limit for each Constituent of Concern/Monitoring Parameter shall be its background value as obtained during that Reporting Period, as described in Part I.D of the attached Monitoring and Reporting Program No. 94-020.

c. **Monitoring Points and Background Monitoring Points**

Those listed in Monitoring and Reporting Program Part I.D.4. and shown on Attachment C.

d. **Point of Compliance**

The Point of Compliance is the hydraulically downgradient limit of the waste management unit boundary as shown on Attachment C, and extends vertically down through the uppermost aquifer .

e. **Compliance Period**

The Compliance Period is the number of years equal to the active life of the waste management unit plus the closure period. The closure period shall extend as long as the wastes pose a threat to water quality. Each time the Standard is broken (i.e., a release is discovered), the Unit begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the Unit has been in continuous compliance for at least three consecutive years.

2. Monitoring Parameters for Detection Monitoring

The monitoring parameters for water and soil pore gas shall be selected to ensure early detection of a contaminant release. The monitoring parameters for detection monitoring are listed in Monitoring and Reporting Program I.D.4..

3. Additional Monitoring Points or Background Monitoring Points.

Within six months of being notified by the Executive Officer, the Discharger shall, install any additional ground water, soil pore liquid, soil pore gas, or leachate monitoring devices required to fulfill the terms of any Discharge Monitoring Program issued by the Executive Officer.[a]

4. Additional Requirements

a. The concentrations of indicator parameters or waste constituents in water passing through the "Detection" Points of Compliance shall not exceed the "water quality protection standard(s)" established pursuant to Monitoring and Reporting Program No. 94-020, which is attached and made part of this Order.[a]

b. Discharge of waste shall not cause a "statistically significant" increase over background for any of the constituents of concern or monitoring parameters listed in Appendix I and II of Subtitle D.[a]

c. Discharge of waste shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board.

d. Discharge of waste shall not cause concentrations of chemicals and radionuclides in underlying and downgradient ground water to exceed limits set forth in Title 22, Chapter 15, Articles 4 and 5 of the code.

e. Discharge of waste shall not adversely impact the quality of water in any aquifer.

f. Discharge of waste shall not cause ground water in downgradient wells to exceed the State Department of Health Services latest recommended Drinking Water Action Levels or Maximum Contaminant Levels.

D. PROVISIONS

1. Order No. 87-35, "Waste Discharge Requirements for City of Watsonville Landfill," adopted by the Board on March 13,1987, is hereby rescinded.

2. The Discharger shall comply with "Monitoring and Reporting Program No. 94-020", as specified by the Executive Officer or revisions approved by the Executive Officer.

3. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to regulatory agency personnel and to facility operating personnel, who shall be familiar with its contents.

4. The Discharger shall comply with all other applicable provisions of Chapter 15, Title 14, and Subtitle D that are not specifically referred to in this Order. If any applicable regulation requirements overlap or conflict in any manner, the most restrictive requirement shall govern in all cases, unless specifically stated otherwise in this Order, or as directed by the Executive Officer.

5. The Discharger shall maintain legible records of the volume and type of each waste discharged at each Unit and the manner and location of discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.[a]

6. The Discharger shall be responsible for accurate waste characterization, including determinations of whether or not wastes will be compatible with containment features or other wastes and whether or not wastes are required to be managed as hazardous wastes.[a]

7. The Regional Board considers the property owner and Discharger to have a continuing responsibility for correcting any problems which may arise in the future as a result of this waste discharge.

8. The landowner and the Discharger shall have a continuing responsibility to assure protection of usable waters, from discharged wastes and from gases and leachate generated by discharged waste, during the Landfills active life, closure, and post-closure maintenance periods and during subsequent use of the property for other purposes.

9. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with Monitoring and Reporting Program No. 94-020, as required by Sections 13750 through 13755 of the California Water Code.[e]

10. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the facility. This notification shall be given at least 90 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these waste discharge requirements. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator, in writing, of the existence of this Order. A copy of that notification shall be sent to the Board. Notification to the Board shall also comply with Section 2590(c) of Chapter 15.[a]

11. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Board, and a statement indicating that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a violation of Section 13264 of the Water Code (discharge without waste discharge requirements). Transfer may be approved or disapproved in writing by the Executive Officer.e

12. Within 60 days after completing final closure of all municipal solid waste landfill Units,

    a. the owner or operator must record a notation on the deed to the Landfill facility property, or some other instrument that is normally examined during title search, and notify the Executive Officer that the notation has been recorded and a copy has been placed in the operating record.

    b. the notation on the deed must in perpetuity notify any potential purchaser of the property that:

        1) the land has been used as a landfill facility; and

        2) its use is restricted pursuant to Subtitle D, section 258.61(c)(3).

    c. Pursuant to Chapter 15, should the Discharger default in post-closure care, liability shifts to the new owner/operator.[a,b,d]

13. The Discharger shall submit to the Regional Board and the California Integrated Waste Management Board for approval an updated closure and post-closure maintenance plan (Closure Plan) by **April 9, 1994**. The Closure plan shall describe the methods and controls to be used to assure protection of the quality of surface and ground waters of the area during partial and final closure operations and during any proposed subsequent use of the land. The Closure Plan must include:

    a. a description of the final cover, designed in accordance with all applicable State and Federal regulations and the methods and procedures to be used to install the cover;

    b. an estimate of the largest area of the municipal solid waste landfill Unit ever requiring a final cover at any time during the active life;

    c. an estimate of the maximum inventory of wastes ever on-site over the active life of the landfill facility;

    d. a schedule for completing all activities necessary to satisfy all closure criteria as required by Chapter 15, Title 14, and Subtitle D regulations;

    e. an estimate of closure and post closure maintenance costs;

    f. a proposal for a trust fund or equivalent financial arrangement to provide sufficient funding for closure and post-closure maintenance; and

    g. the amount to be deposited in the trust fund or equivalent financial arrangement each year.

    The Closure Plan shall be prepared by or under the supervision of a California registered civil engineer or certified engineering geologist. Updates of the plan are required whenever substantial changes occur or five years has elapsed since the last major revision. The method, identified for each Units' closure and protection of the quality of surface and ground waters, shall comply with waste discharge requirements established by the Regional Board. The Closure Plan report shall be consistent with all applicable State and Federal regulations, including Chapter 15, Title 14, and Subtitle D.[a,b,d]

14. The Discharger shall notify the Board at least 180 days prior to beginning any partial or final landfill closure activities. The notice shall include a statement that all closure activities will conform to the most recently approved Closure Plan and that the Plan provides for Unit closure in compliance with all applicable state and federal regulations. If there is no approved Closure Plan, the Discharger must submit a complete Closure Plan at least 240 days prior to beginning any Landfill closure activities.[a,b]

15. The Executive Officer may require partial and/or final closure of any waste management units regardless of whether such waste management units has reached final capacity laterally and/or vertically for the protection of water quality.[a]

16. The Discharger shall report all changes in usage of daily cover and performance standards within 10 days following the change.

17. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor, as appropriate; ground water, leachate from the Unit, the vadose zone, and surface waters per the current version of the Monitoring and Reporting Program (MRP) throughout the post-closure maintenance period.[a]

18. The post-closure maintenance period shall continue until the Board determines that remaining wastes in the Landfill will not threaten water quality.[a]

19. Discharger shall immediately notify the Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste containment facilities or of precipitation and drainage control structures.

20. At any time, the Discharger may file a written request (including appropriate supporting documents) with the Regional Board Executive Officer, proposing appropriate modifications to the Monitoring and Reporting Program. The request may address changes (a) to any statistical method, non-statistical method, or retest method used with a given constituent or parameter, (b) to the manner of determining the background value for a constituent or parameter, (c) to the method for displaying annual data plots, (d) to the laboratory analytical method used to test for a given constituent or parameter. (e) to the media being monitored [e.g., the addition of soil pore gas to the media being monitored], (f) to the number or placement of Monitoring Points or Background Monitoring Points for a given monitored medium, or (g) to any aspect of monitoring or Quality Assurance/Quality Control. After receiving and analyzing such a report, the Executive officer either shall reject the proposal for reasons listed, or shall incorporate it, along with any necessary changes, into the attached Monitoring and Reporting Program. The Discharger shall implement any changes in the Monitoring and Reporting Program proposed by the Regional Board Executive Officer upon receipt of a revised Monitoring and Reporting Program.

21. The Discharger shall submit a complete liner system design report for Executive Officer consideration of any new waste management unit use and construction, at least 180 days prior to waste management unit development. The design report shall adequately address any proposed deviation from the most currently approved fill sequencing plan. It must adequately address all applicable requirements of state (Chapter 15 and Title 14) and federal (Subtitle D) landfill regulations.[a]

22. Vertical expansions (i.e., additional refuse placement on top of existing unlined waste management units already containing refuse) above currently permitted final fill elevations will <u>not</u> be permitted, unless:

    a. The Discharger proposes and the Executive Officer approves, a liner system to be provided for the additional refuse. The Discharger shall adequately address all siting criteria and engineering properties of underlying refuse, differential settlement, the ability of the underlying waste to support the proposed liner system and additional refuse, and all effects of the proposed liner system and additional refuse upon the underlying refuse; <u>and</u>

b. The Discharger demonstrates the additional refuse placed on top of existing unlined waste management units does not significantly increase the threat to water quality. All conclusions shall consider site specific conditions, including subsurface hydrogeologic factors, existing threat to water quality, any existing State Water's degradation as a result of waste management unit waste discharges, beneficial uses of underlying and adjacent waters, size of the existing waste management unit, remaining capacity, existing and proposed final fill elevations, financial feasibility, and other relevant factors.

23. Pursuant to the California Code of Regulations Title 23, Chapter 15, Article 9, the Discharger must submit written Report of Waste Discharge (Report) to the Executive Officer no later than August 15, 1998. The Report shall be prepared in accordance with §2594, §2595, §2596, and §2597. of Chapter 15. Required information may be included by reference where appropriate. Updated Reports are required every five years or when a change in the Waste Discharge Requirements or Monitoring and Reporting Program is requested or required. The Report updates must at a minimum:

    a. Discusses whether there has been or will be changes in the continuity, character, location, or volume of the discharge;

    b. Discusses any proposed expansions (lateral and/or vertical expansions within and/or outside currently permitted landfill boundaries) or closure plans, including detailed information on the quality and quantity of waste discharged and the anticipated impact upon water quality and Landfill operations.

    c. Discusses whether, in their opinion, there is any portion of the Order that is incorrect, obsolete, or otherwise in need of revision;

    d. Addresses all other applicable sections of Article 9, Chapter 15 (e.g., update of the Landfill's Development and Operations Plan, etc.,) as necessary.

    e. Includes any other technical documents needed to demonstrate continued compliance with this Order and all pertinent state and federal requirements.[a]

24. Prior to **May 30, 1994**, the Discharger shall submit a report addressing compliance with all terms of this Order. The report shall include a summary of all work completed and scheduled as a result of this Order. The intent of this report is to demonstrate that the Discharger has become familiar with this Order and the complexities involved in it's implementation.

25. Except for data determined to be confidential under Section 13267 (b) of the California Water Code, all reports prepared in accordance with this Order shall be available for public inspection at the office of the Regional Board.

26. All reports shall be signed as follows:

    a. for a corporation; by a principal executive officer of at least the level of vice president;

    b. for a partnership or sole proprietorship; by a general partner or the proprietor, respectively;

    c. for a public agency; by either a principal executive officer or ranking elected official or, their "duly authorized representative."

    d. Engineering reports; by a California Registered Civil Engineer or Certified Engineering Geologist.

27. Any person signing a report makes the following certification, whether its expressed or implied:

    "I certify under penalty of perjury I have personally examined and am familiar with the information submitted in this document and all attachments and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."[e]

28. The Discharger shall submit to the Executive Officer for review and approval a periodic load-checking program. The load checking program shall be adequately designed to ensure that "hazardous wastes" and "unauthorized designated wastes" are not discharged to the waste management unit. The load checking program shall be submitted by **June 30, 1994**. The program shall include, but not be limited to:[a]

    a. Training program for on-site personnel.

    b. Record keeping and reporting program.

    c. Alternatives for waste found to not be in compliance with these waste discharge requirements.

29. The Board will review this Order periodically and will revise these requirements when necessary.

30. The Discharger shall submit an Operations Plan by **August 15,1994**. The Operations Plan shall include detailed information regarding regulatory considerations and design, construction and operating provisions. References to existing documents/plans are acceptable as long as the documents referenced are readily available or previously submitted to the Board. At a minimum the Operations Plan shall:[a]

    a. include a Fill Sequencing Plan, including detailed maps. The Fill Sequencing Plan should describe in detail the overall development plan for the entire Landfill.

    b. include a detailed description of the lateral and vertical extent of refuse within all existing Phases. It must include an accurate estimate of waste volumes within each existing Landfill Phase and an approximation of the remaining volume and years of capacity for each existing module and all new proposed phases within currently permitted Landfill boundaries. It must also describe all existing available space within currently permitted Landfill areas (i.e., phases where refuse has been placed in the past, but have not reached final permitted elevation and phases or portions of phases where refuse has never been placed).

    c. discuss any plans/proposals to close or partially close any phases or portions of phases, any proposed liner systems and respective design components, any proposed plans for long-term intermediate cover for Landfill areas which may remain inactive for over one year.

31. The Discharger shall develop a long-term intermediate cover design for all Landfill areas which have not reached final fill elevation, but will remain inactive for over one year. Cover designs shall minimize percolation from precipitation and surface water flows. The proposed design shall be submitted by **August 15, 1994**, for Executive Officer approval. Executive Officer approval of the design will be based on site specific factors as described in Discharge Specification B.42.

32. The Discharger must submit a 'Wet Weather Preparedness Report' by **November 1, of each year**. The report must address, in detail, compliance with all wet weather preparedness related specifications of this Order, and all other relevant Chapter 15, Title 14, and Subtitle D criteria.

33. If the Discharger or the Regional Board determines, pursuant to Section 2550.8(g) or (i), that there is evidence of a new release from any portion of the Landfill, the Discharger shall immediately implement the procedures outlined in MRP Part III.D.2.

34. The City of Watsonville by Council action (i.e., by adoption of a Resolution) shall make a pledge of revenue in the amount of $1,800,000.00 to a restricted reserve in a Pledge of Revenue Financial Assurance Instrument (Instrument) to cover the costs of initiating and completing corrective action of the "worst case" reasonably foreseeable release. At any time the Discharger may submit a report that substantiates and request changes to the Instrument. The Discharger shall submit an updated release cost estimate and validate the Instrument every five years. This required update can be included in the Report of Waste Discharge update or submitted under separate cover. The Executive Officer shall either deny or approve these request.[a,d]

35. The Discharger shall submit a signed original Special Revenue Fund Agreement (Agreement). The Agreement shall establish the Pledge of Revenue Instrument as the financial assurance mechanism for corrective actions as outlined in Provision 35, above. The Discharger shall submit one original of the adopted Resolution, and two original signed Agreements for Executive Officer review, approval, and signature by **August 15, 1994**.

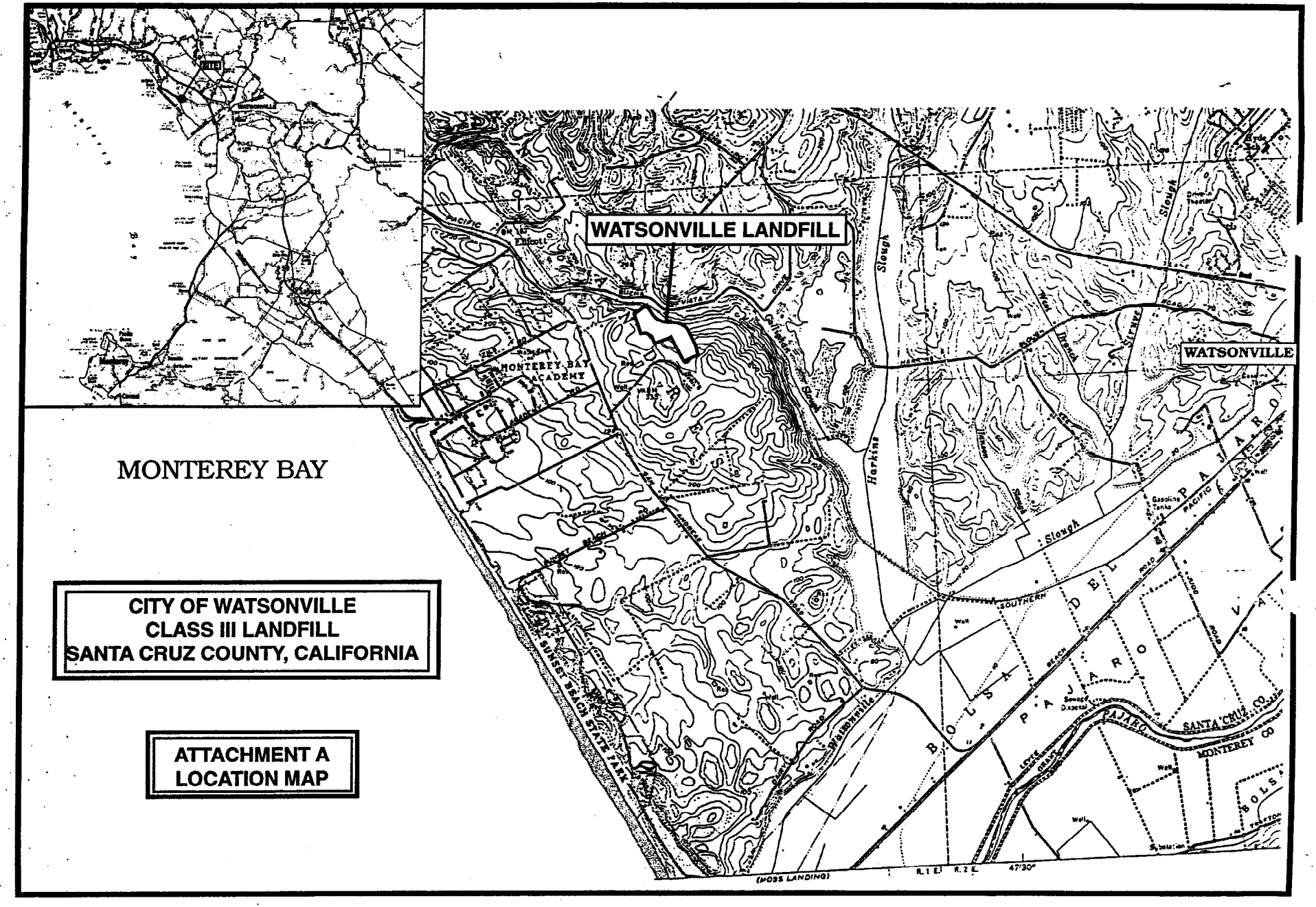
36. Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of section 13267 of the California Water Code, or falsifying any information provided therein, is guilty of a misdemeanor.[e]

37. The Discharger and/or any person who violates waste discharge requirement and/or who intentionally or negligently discharges waste, causes or permits waste to be deposited where it is discharged to waters of the state, may be liable for civil and/or criminal remedies, as appropriate, pursuant to the California Water Code.[e]

38. The Discharger shall comply with the following submittal and implementation schedule for all tasks and/or reports required by this order:

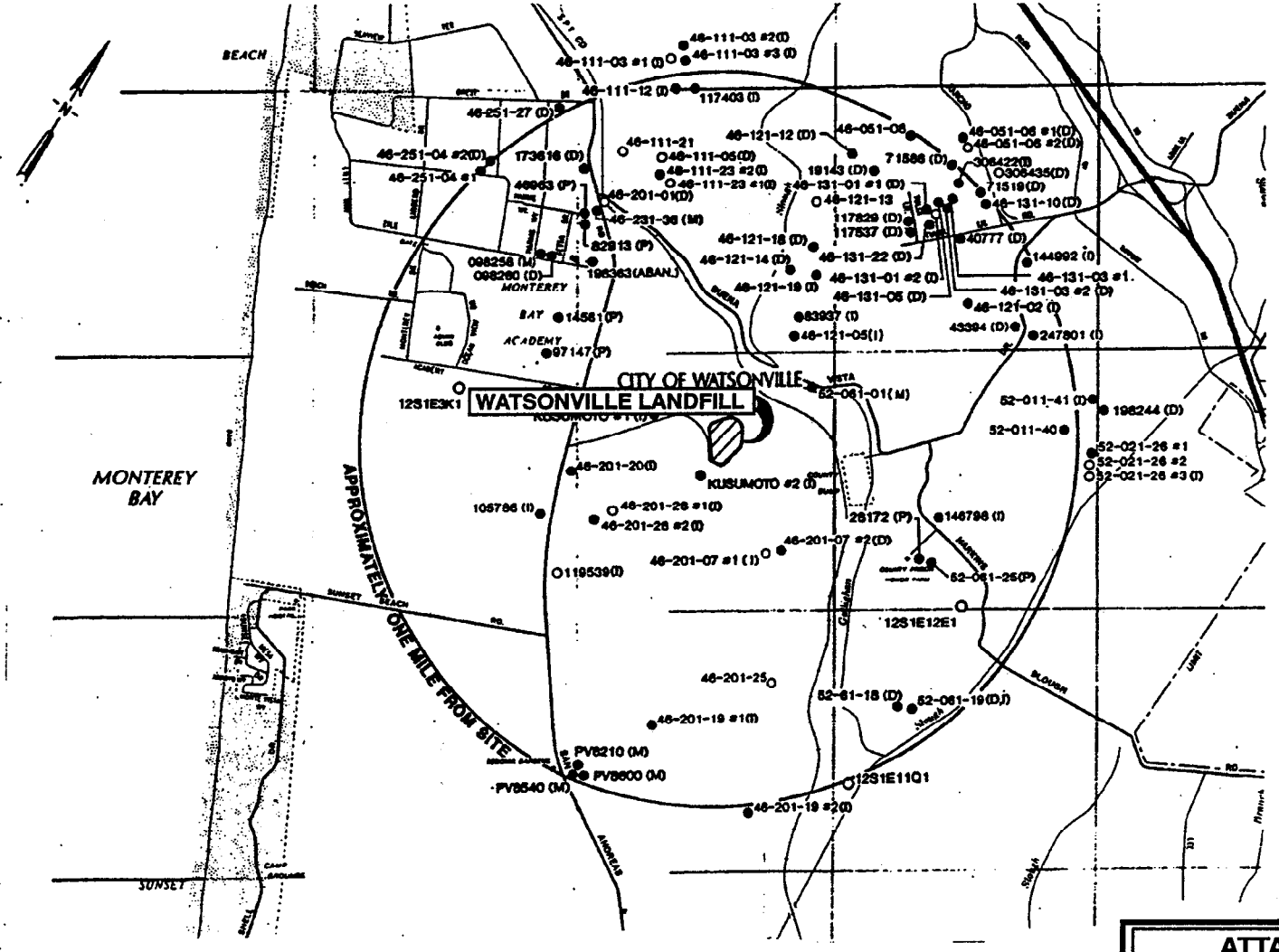
REPORT AND IMPLEMENTATION DATE SUMMARY

TASK	IMPLEMENTATION DATE
Runoff diversion and erosion prevention [Specification No. 21]	October 1, of each year
Minimum one foot cover over entire active WMU [Specification No. 30]	October 1, of each year
Vegetation placement over entire Landfill area [Specification No. 31]	October 1, of each year
REPORT	DUE DATE
Wet Weather Preparedness Report [Provision No. 33]	November 1, of each year
Technical Compliance Report [Provision No. 25]	May 30, 1994
Load Checking Program [Provision No. 29	June 30, 1994
Financial Assurance Agreement Documents [Provision No. 36]	August 15, 1994
Long-term Intermediate Cover Design Report [Provision No. 32]	August 15, 1994
Updated Closure Plan [Provision No. 14]	April 9,1994
Updated Master Plan [Provision No. 31]	August 15, 1994
Financial Assurance Report [Provision No. 36]	August 15, 1998 every 5 years thereafter



CITY OF WATSONVILLE
CLASS III LANDFILL
SANTA CRUZ COUNTY, CALIFORNIA

ATTACHMENT A
LOCATION MAP



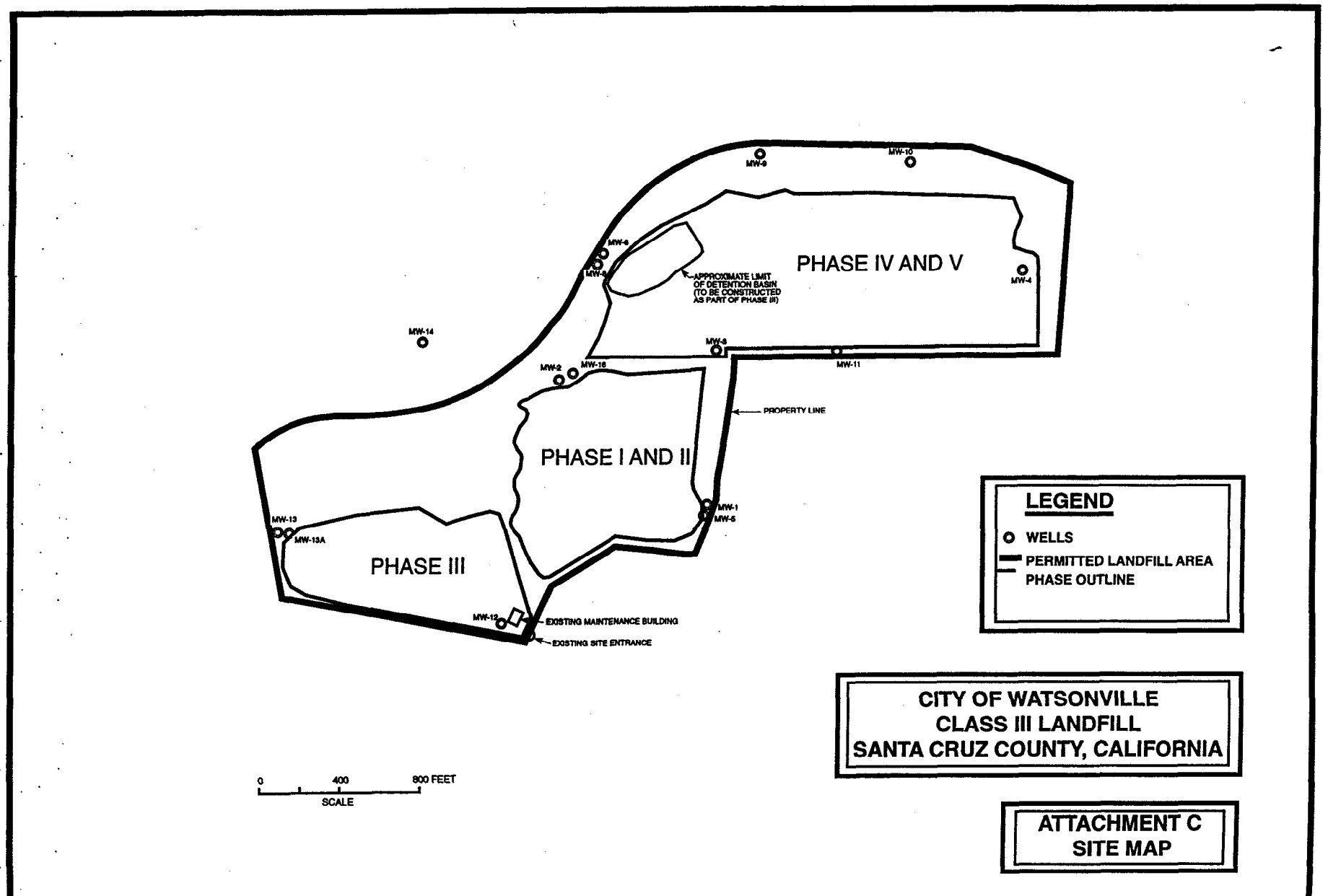
EXPLANATION:

- ○ Location approximate
- ● Location from map or directions on drillers log
- (D) Domestic well (private water supply well)
- (I) Irrigation well
- (P) Public water supply well
- (M) Monitoring or test well

NOTE:

Ten monitoring wells at the City of Watsonville Landfill and six wells at the Buena Vista Landfill are not included on this figure

ATTACHMENT B
AREA WELL LOCATIONS


MW-9
MW-10
MW-8
MW-7
APPROXIMATE LIMIT OF DETENTION BASIN (TO BE CONSTRUCTED AS PART OF PHASE III)
PHASE IV AND V
MW-4
MW-14
MW-3
MW-11
MW-2
MW-16
PROPERTY LINE
PHASE I AND II
MW-1
MW-5
MW-13
MW-13A
PHASE III
MW-12
EXISTING MAINTENANCE BUILDING
EXISTING SITE ENTRANCE
LEGEND
WELLS
PERMITTED LANDFILL AREA
PHASE OUTLINE
0
400
800 FEET
SCALE
CITY OF WATSONVILLE
CLASS III LANDFILL
SANTA CRUZ COUNTY, CALIFORNIA
ATTACHMENT C
SITE MAP

SWIS #44-AA 0002

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5427

Revised MONITORING AND REPORTING PROGRAM NO. 94-20
EFFECTIVE JANUARY 21, 1998

FOR

CITY OF WATSONVILLE
CLASS III LANDFILL
SANTA CRUZ COUNTY

Notes:
(1)Capitalized terms are defined in Part V. (2)References are to this Monitoring and Reporting Program, unless otherwise indicated. (3)"Discharger" and "Landfill" are defined in the associated WDR (Order No. 94-20).

PART I: MONITORING AND OBSERVATION SCHEDULE

Unless otherwise indicated, all monitoring and observations shall be reported as outlined in Part IV.

A. SITE INSPECTIONS

The Discharger shall inspect the Landfill in accordance with the following schedule, and record, at a minimum, Standard Observations (Part V).

Site Inspection Schedule:

1. During the wet season (October through April), following each storm which produces storm water discharge, with inspections performed at least monthly.

2. During the dry season a minimum of one inspection every three months.

B. INTAKE MONITORING

The Discharger shall maintain a daily record of the waste stream. The record shall include the following:

1. Weight and volume of waste received;

2. Running totals of volume received, volume remaining for waste placement, and Landfill life expectancy;

3. Current fill area; and

C. LEACHATE AND DRAINAGE SYSTEMS INSPECTIONS

The Discharger shall inspect leachate systems and record the following information:

1. Weekly - leachate containment and collection system integrity, surface water collection and drainage system integrity;

2. Quarterly - pumping system operational check; and

3. Annually -
   a. Testing and demonstration of proper operation as required by CCR Title 27 §20340(d). Results of annual testing shall be developed in a manner that makes one year's test comparable to previous and subsequent tests. The absence or presence of biofouling shall be specifically addressed in the testing report.
   b. Analyze leachate for Monitoring Parameters. Every fifth year analyze for Constituents of Concern.
   c. At sites where leachate is used for dust control, testing that shows the leachate is non-hazardous shall be conducted.

D. RAINFALL DATA

The Discharger shall record the following information:

1. Total precipitation during the Monitoring Period; and

2. Return rating of most intense 24 -hour storm (e.g. 25 year recurrence interval).

E. ANALYTICAL MONITORING

The Discharger shall monitor the Landfill in accordance with the following schedule(s). Monitoring locations are shown on **Attachment A.** Sampling, analyses, and reporting are also discussed in and shall comply with Parts II, III, and IV. Semi-annual monitoring will be performed each September and March. Annual monitoring will be performed in conjunction with semi-annual monitoring , rotating the sampling season on an annual basis (e.g. 3/98, 9/99,3/00, and so on).

1. Constituent of Concern Monitoring

   The Constituent of Concern (COC) parameter includes all constituents listed in Appendix II to 40 CFR, part 258. Monitoring for Constituents of Concern (COC) shall encompass only those Constituents of Concern that do not also serve as Monitoring Parameters. Analysis of Constituents of Concern shall be carried out once every five years at each of the site's groundwater monitoring points, and as required due to an indication of release (Part IV.C.4). **Wells that have not previously been sampled for COCs shall be sampled and analyzed for all COCs within six months of this program becoming effective.**

2. General Parameter Monitoring

Sample Location (see Attachment A to this MRP)	Monitoring Program		Parameter/Frequency	
	Detection	Corrective	VOC[1] Monitoring Frequency	Inorganic-Parameter[2] Monitoring Frequency
AW-1	X		Semi-annual	Semi-annual
TW-2		X	Semi-annual	Semi-annual
AW-3	X	X	Semi-annual	Semi-annual
AW-4 (background)	X		Annual	Annual
TW-5		X	Semi-annual	Semi-annual
TW-8		X	Semi-annual	Semi-annual
TW-9 (background)	X		Annual	Annual
TW-10 (background)	X		Annual	Annual
TW-11 (background)	X		Annual	Annual
TW-12		X	Semi-annual	Semi-annual
TW-13A	X		Semi-annual	Semi-annual
TW-14			Semi-annual	
TW-17	X		Semi-annual	Semi-annual
TW-18	X	X	Semi-annual	Semi-annual
TW-20		X	Semi-annual	Semi-annual
TW-21			Semi-annual	
TW-22	X		Semi-annual	Semi-annual
AW-23	X		Semi-annual	Semi-annual
Agricultural Well - 240	X		Semi-annual	Semi-annual
Leachate/Seep Systems		X	Annual	Annual
Gas Collection Header		X	Annual	

1 Volatile Organic Compounds: USEPA method 8260 for groundwater, method TO-14 for landfill gas.

2 Inorganic parameters:
Laboratory: COD, chloride, manganese, nitrate-nitrite as nitrogen, sodium, sulfate, TDS.
Field: pH, EC, temperature, turbidity, dissolved oxygen.

[3]Storm Water inorganic parameters:
Laboratory: pH, total suspended solids, EC, and total organic carbon or oil & grease.

3. Collection System Performance
   a. The following flow volumes shall be gauged monthly and reported semi annually. Monthly and cumulative totals shall be reported in tabular and graphical formats semi-annually. Disposal method of all collected volumes shall be reported.
      - Phase II seep.
      - Phase I leachate (gravity system).
      - Phase I/II gas.
      - Phase I/II gas condensate.
      - Phase I/II leachate pumping (leachate extraction wells).
      - Phase III leachate (volume extracted and volume introduced).

   b. Phase I/II Leachate Level
      Leachate/gas wells in Phase I/II shall be sounded routinely. Success of corrective action efforts will be measured by the Dischargers ability to lower and eventually eliminate leachate in Phase I/II. A set schedule for well sounding and reporting will be promulgated once collection system parameters have been established (~6/98).
   c. Phase III Sump Lysimeter
      Sound lysimeter monthly. If liquid is present, make notification to Board in accordance with Part IV.C.4, sample and analyze for VOCcomposite.
   d. Mass Removal
      Calculate and report extraction system(s) contaminant mass removal volumes semi-annually (e.g. gas volume removed X non-methane VOC concentration in gas). Report cumulative volumes annually.

4. Storm Water Monitoring
   Monitor storm water discharge point(s) in accordance with your National Pollutant Discharge Elimination System permit.

5. Groundwater Flow Rate and Direction
   For each monitored groundwater body, the Discharger shall measure the water level in each well at least once during the monitoring period, including the times of expected highest and lowest elevations of the water level. The Discharger shall also determine the presence of horizontal and vertical gradients, groundwater flow rate, and flow direction for the respective groundwater body.

6. Sample Procurement Limitation
   For any given monitored medium, the samples taken from Monitoring Points to satisfy the data analysis requirements for a given Monitoring Period shall be taken within a span not exceeding 30 days, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

PART II: SAMPLE COLLECTION AND ANALYSIS

A. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis shall be performed according to the most recent version of Standard USEPA Methods (USEPA publication "SW-846"), and in accordance with an approved sampling and analysis plan. Water analysis shall be performed by a laboratory certified for these analyses by the State of California. Specific methods of analysis must be identified. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign reports of such work submitted to the Board. In addition, the Discharger is responsible for seeing that the laboratory analysis of samples from Monitoring Points meets the following restrictions:

1. The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., Trace) in historical data for that medium, the analytical method having the lowest Method Detection Limit (MDL) shall be selected.

2. Trace results (results falling between the MDL and the Practical Quantitation Limit) shall be reported as such.

3. Method Detection Limits and Practical Quantitation Limits shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. Both limits are defined in Part V and shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived values, the results shall be flagged accordingly, and an estimate of the limit actually achieved shall be included.

4. Quality assurance and quality control (QA/QC) data shall be reported along with the sample results to which it applies. Sample results shall be reported unadjusted for blank results or spike recovery. The QA/QC data submittal shall include:
   a. the method, equipment, and analytical detection limits;
   b. the recovery rates, an explanation for any recovery rate that is outside the USEPA-specified recovery rate;
   c. the results of equipment and method blanks;
   d. the results of spiked and surrogate samples;
   e. the frequency of quality control analysis;
   f. chain of custody logs; and
   g. the name and qualifications of the person(s) performing the analyses.

5. QA/QC analytical results involving detection of common laboratory contaminants in any sample shall be reported and flagged for easy reference.

6. Non-targeted chromatographic peaks shall be identified, quantified, and reported to a reasonable extent. When significant unknown peaks are encountered, second column or second method confirmation procedures shall be performed in an attempt to identify and more accurately quantify the unknown analyte(s).

B. CONCENTRATION LIMIT DETERMINATION

1. For the purpose of establishing Concentration Limits for Constituents of Concern and Monitoring Parameters detected in greater than ten percent of a medium's samples the Discharger shall:
   a. Statistically analyze existing monitoring data (Part III), and propose, to the Executive Officer, statistically derived Concentration Limits for each Constituent of Concern and each Monitoring Parameter at each Monitoring Point for which sufficient data exists;
   b. In cases where sufficient data for statistically determining Concentration Limits does not exist the Discharger shall collect samples and analyze for Constituent(s) of Concern and Monitoring Parameter(s) which require additional data. Once sufficient data is obtained the Discharger shall submit proposed Concentration Limit(s) to the Executive Officer for approval. This procedure shall take no longer than two calendar years;
   c. Sample and analyze new Monitoring Points, including any added by this Order, until sufficient data is available to establish a proposed Concentration Limit for all Constituents of Concern and Monitoring Parameters. Once sufficient data is obtained the Discharger shall submit the proposed Concentration Limit(s) to the Executive Officer for approval. This procedure shall take no longer than two calendar years.

2. Once established, concentration limits shall be reviewed annually by the Discharger. The past years data will be reviewed for application to revision of concentration limits. When appropriate, new concentration limits shall be proposed.

C. RECORDS TO BE MAINTAINED

Analytical records shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five years. The period of retention shall be extended during the course of any unresolved litigation or when requested by the Executive Officer. Such records shall show the following for each sample:

1. Identity of sample, Monitoring Point from which it was taken, and individual who obtained the sample;

2. Date and time of sampling;

3. Date and time that analyses were started and completed, and the name of personnel performing each analysis;

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

5. Results of analyses, and Method Detection Limit and Practical Quantitation Limit for each analysis; and

6. A complete chain of custody log.

PART III: STATISTICAL AND NON-STATISTICAL ANALYSIS OF DATA

A. STATISTICAL ANALYSIS

For Detection Monitoring the Discharger shall use statistical methods to analyze Constituents of Concern and Monitoring Parameters which exhibit concentrations which equal or exceed their respective Method Detection Limit in at least ten percent of applicable historical samples. The Discharger may propose and use any statistical method that meets the requirements of California Code of Regulations, Title 27,§20415(e)(7). All statistical methods and programs proposed by the Discharger are subject to Executive Officer approval.

B. NON-STATISTICAL METHOD

The Discharger shall use the following non-statistical method for analyzing constituents which are detected in less than 10% of applicable historical samples. This method involves a two-step process:

1. From constituents to which the method applies, compile a well specific list of those constituents which exceed their respective Method Detection Limit. The list shall be compiled based on either the data from the single sample or in cases of multiple independent samples, from the sample which contains the largest number of constituents;

2. Evaluate whether the listed constituents meet either of two possible triggering conditions. Either, the list, from a single well, contains two or more constituents, or contains one constituent which equals or exceeds its Practical Quantitation Limit. If either condition is met the Discharger shall conclude that a release is tentatively indicated and shall immediately implement the appropriate re-test procedure under Part III.C.

C. RE-TEST PROCEDURE

1. In the event that the Discharger concludes that a release has been tentatively indicated, the Discharger shall carry out the reporting requirements of IV.C.2. and, within 30 days of this indication, collect two new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicating Monitoring Point, collecting at least as many samples per Monitoring Point as were used for the initial test.

2. Analyze each of the two suites of re-test data using the same statistical method (or non-statistical comparison), that provided the tentative indication of a release. If the test results of either (or both) of the re-test data suites confirms the original indication, the Discharger shall conclude that a release has been discovered and shall carry out the requirements of Part IV.C.

3. Re-tests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Constituent of Concern(s) or Monitoring Parameter(s) which triggered the indication. When a member of the VOC composite parameter is re-tested the result of the entire VOCcomposite shall be reported. In that case, a re-test shall validate the original release indication even if the detected constituent(s) in the re-test sample(s) differs from those detected in the sample which initiated the re-test;

PART IV: REPORTING

A. MONITORING REPORT

A written Monitoring Report shall be submitted semi-annually by July 31 and January 31 of each year. The report shall address all facets of the Landfill's monitoring. Reports shall include, at a minimum, the following:

1. Letter of Transmittal
   A letter transmitting the essential points shall accompany each report. The letter shall include a discussion of violations that occurred since the last such report was submitted. If no new violations have been discovered since the last submittal, this shall be stated in the transmittal letter. Both the monitoring report and the transmittal letter shall be signed by: for private facilities, a principal executive officer at the level of vice president; for public agencies, the director of the agency. The transmittal letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

2. Compliance Summary
   The update shall contain at least:
   a. Discussion of compliance with concentration limits. Release indications and actions taken.
   b. For each monitored groundwater body, calculate groundwater velocity and , based upon water level elevations taken during the Monitoring Period, graphically present groundwater flow direction under and around the Unit.

3. Graphical Presentation of Analytical Data
   For each Monitoring Point in each medium, submit, in graphical format, the complete history of laboratory analytical data. Graphs shall effectively illustrate trends and/or variations in the analytical data. Each graph shall plot a single constituent concentration over time at one (for intra-well comparisons) or more (for inter-well comparisons) monitoring points in a single medium. Maximum contaminant levels (MCL) and/or concentration limits shall be graphed along with constituent concentrations where applicable. When multiple samples are taken, graphs shall plot each datum, rather than plotting mean values.

4. Corrective Action Summary
   Discuss significant aspects of any corrective action measures conducted during the monitoring period. Calculate pollutant load removed from the sites impacted media by mass (water, gas, leachate) removal system(s). Mass removal calculations shall be based on actual analytical data as required by Part I.E. Present discussion and indications, relating mass removal data to the violation the corrective action is addressing.

5. Laboratory Results
   Laboratory results and statements demonstrating compliance with Part II and results of analyses performed at the Landfill, outside the requirements of this Monitoring and Reporting Program, shall be summarized and reported.

6. Sampling Summary
   a. For each monitoring well addressed by the report: a description of; 1) the method and time of water level measurement, 2) the method of purging and purge rate and well recovery time, and 3) field parameter readings.
   b. For each monitoring point addressed by the report, a description of the type of sampling device used, its placement for sampling, and a description of the sampling procedure (number of samples, field blanks, travel

blanks, and duplicate samples taken; the date and time of sampling; the name and qualifications of the person actually taking the samples; description of any anomalies).

7. Standard Observations
   A summary of Standard Observations (Part V) made during the Monitoring Period.

8. Map(s)
   A map or aerial photograph showing monitoring locations, relative physical features, and groundwater contours to the greatest degree of accuracy possible.

B. ANNUAL SUMMARY REPORT

The Discharger shall submit an annual report to the Board covering the previous monitoring year. The annual Monitoring Period ends December 31. This report may be combined with the final Monitoring Report of the year and shall be submitted no later than January 31 each year. The annual report must include the information outlined above and the following:

1. Discussion
   Include a comprehensive discussion of the compliance record, a review of the past years significant monitoring system and operational changes, a summary of corrective action results and milestones, and a review of construction projects, with water quality significance, completed or commenced in the past year or planned for the up-coming year.

2. Statistical Limit Review
   Statistically derived concentration limits shall be reviewed annually and revised as necessary. Data collected during the year shall be discussed and considered for inclusion in, and determination of, proposed limits for the coming year. For statistical limits that are changed from the previous year, include a comprehensive discussion of the proposed limit for Executive Officer review and consideration.

3. Analytical Data
   Complete historical analytical data presented in tabular form and on 3.5" diskettes, in Excel™ format or in another file format acceptable to the Executive Officer.

4. Leachate Collection System
   Results of annual leachate system testing as required by Part I.C. At sites where leachate is used for dust control, testing that shows the leachate is non-hazardous shall be submitted annually.

5. Map(s)
   A map, or set of maps, that indicate(s) the type of cover material in place (final, long-term intermediate, or intermediate) over inactive and completed areas.

C. CONTINGENCY RESPONSE

1. Leachate Seep
   The Discharger shall, within 24 hours, report by telephone concerning the discovery of previously unreported seepage from the disposal area. A written report shall be filed with the Board within seven days, containing at least the following information:
   a. A map showing the location(s) of seepage;
   b. An estimate of the flow rate;
   c. A description of the nature of the discharge (e.g., pertinent observations and analyses); and
   d. A summary of corrective measures both taken and proposed.

2. Response to an Initial Indication of a Release
   Should the initial statistical or non-statistical comparison (under Part III. A or B) indicate that a new release is tentatively identified, the Discharger shall:
   a. Within 24 hours, notify the Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved;
   b. Provide written notification by certified mail within seven days of such determination; and
   c. Either of the following:
      i. Shall carry out a discrete re-test in accordance with Part III.C. If the re-test confirms the existence of a release or the Discharger fails to perform the re-test, the Discharger shall carry out the requirements of Part IV.C.4. In any case, the Discharger shall inform the Board of the re-test outcome within 24 hours of results becoming available, following up with written results submitted by certified mail within seven days. or;
      ii. Make a determination, in accordance with CCR Title 27, §20420(j)(7), that a source other than the waste management unit caused the release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in the groundwater, surface water, or the unsaturated zone.

3. Physical Evidence of a Release
   If either the Discharger or the Executive Officer determines that there is significant physical evidence of a new release [Title 27 §20385(a)(3)], the Discharger shall conclude that a release has been discovered and shall:
   a. Within seven days notify the Board of this fact by certified mail (or acknowledge the Board's determination);
   b. Carry out the requirements of Part IV C.4. for potentially-affected mediums; and
   c. Carry out any additional investigations stipulated in writing by the Executive Officer for the purpose of identifying the cause of the indication.

4. Release Discovery Response
   If the Discharger concludes that a new release has been discovered the following steps shall be carried out:
   a. If this conclusion is not based upon monitoring for Constituents of Concern, the Discharger shall sample for Constituents of Concern at Monitoring Points in the affected medium. Within seven days of receiving the laboratory analytical results, the Discharger shall notify the Board, by certified mail, of the concentration of Constituents of Concern at each Monitoring Point; this notification shall include a synopsis showing, for each Monitoring Point, those constituents that exhibit an unusually high concentration;
   b. The Discharger shall, within 90 days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring and Reporting Program that:
      (1) Meets the requirements of Title 27, §20420 and §20425; and
      (2) Satisfies the requirements of 40 CFR §258.55(g)(1)(ii) by committing to install at least one monitoring well directly down-gradient of the center of the release;
   c. The Discharger shall, within 180 days of discovering the release, submit a preliminary engineering feasibility study meeting the requirements of Title 27, §20420; and
   d. The Discharger shall immediately begin delineating the nature and extent of the release by installing and monitoring assessment wells as necessary to assure that the Discharger can meet the requirement [Title 27, §20425] to submit a delineation report within 90 days of when the Board directs the Discharger to begin the Evaluation Monitoring Program.

5. Release Beyond Facility Boundary
   Any time the Discharger concludes (or the Executive Officer directs the Discharger to conclude) that a release from the Unit has proceeded beyond the facility boundary, the Discharger shall so notify persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
   a. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release.
   b. Subsequent to initial notification, the Discharger shall provide updates to Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding there has been any material change in the nature or extent of the release.

c. Each time the Discharger sends a notification to Affected Persons (under a. or b., above), the Discharger shall, within seven days of sending such notification, provide the Board with both a copy of the notification and a current mailing list of Affected Persons.

PART V: DEFINITION OF TERMS

A. AFFECTED PERSONS

Individuals who either own or reside upon the land that directly overlies any part of that portion of a gas or liquid phase release that may have migrated beyond the facility boundary.

B. CONCENTRATION LIMITS

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium shall be either:

1. The constituent's statistically determined background value or interval limit, established using an Executive Officer approved method (Part III); or
2. In cases where the constituent's Method Detection Limit (MDL) is exceeded in less than 10% of historical samples, the MDL is the concentration limit (see Part II.A.1).

C. CONSTITUENTS OF CONCERN (COC)

A broad list of constituents likely to be in typical municipal solid waste. The Constituents of Concern for this landfill are derived from USEPA recommendations and are listed in Part I.E.

D. MATRIX EFFECT

Any increase in the Method Detection Limit or Practical Quantitation Limit for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample being analyzed.

E. METHOD DETECTION LIMIT (MDL)

The lowest concentration at which a given laboratory, using a given analytical method to detect a given constituent, can differentiate with 99% reliability, between a sample which contains the constituent and one which does not. The Method Detection Limit shall reflect the detection capabilities of the specific analytical procedure and equipment used by the laboratory.

F. MONITORED MEDIUM (MEDIA)

Those media that are monitored pursuant to this Monitoring and Reporting Program (groundwater, surface water, vadose zone gas and liquid, leachate, gas condensate, and other as specified).

G. MONITORING PARAMETERS

A short list of constituents and parameters used for the majority of monitoring activity. The Monitoring Parameters for this Unit are listed in Part I.E.

H. MONITORING PERIOD (frequency)

The duration of time during which a sampling event must occur. The Monitoring Period for the various mediums and programs is specified in Part I.E. The due date for any given report will be 30 days after the end of its Monitoring Period, unless otherwise stated.

I. PRACTICAL QUANTITATION LIMIT (PQL)

The lowest acceptable calibration standard (acceptable as defined for a linear response or by actual curve fitting) times the sample extract dilution factor times any additional factors to account for Matrix Effect. The PQL shall reflect the quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. PQLs reported by the laboratory shall not simply be restated from USEPA analytical method manuals. Laboratory derived PQLs are expected to closely agree with published USEPA estimated quantitation limits (EQL).

J. STANDARD OBSERVATIONS

1. For Receiving Waters:
   a. Floating and suspended materials of waste origin;
   b. Discoloration and turbidity;
   c. Evidence of odors;
   d. Evidence of beneficial use— presence of water-associated wildlife; and
   e. Flow rate to the receiving water.

2. Along the perimeter of the Unit:
   a. Evidence of liquid leaving or entering the Unit;
   b. Evidence of odors;
   c. Evidence of erosion and/or of exposed refuse; and
   d. Inspection of storm water discharge locations for evidence of non-storm water discharges during dry seasons, and integrity during wet seasons.

3. For the Unit:
   a. Evidence of ponded water at any point on the waste management facility;
   b. Evidence of odors;
   c. Evidence of erosion and/or of daylighted refuse;
   d. Compliance with Storm Water Pollution Prevention Plan, insuring that the terms of the general permit are properly implemented; and
   e. Integrity of drainage systems

K. RECEIVING WATERS

Any surface water which actually or potentially receives surface or groundwater which pass over, through, or under waste materials or contaminated soils.

L. VOLATILE ORGANIC COMPOSITE MONITORING PARAMETER (VOCcomposite)

VOCcomposite, a composite parameter that encompasses a variety of VOCs. The constituents addressed by the VOCcomposite Monitoring Parameter includes all VOCs detectable using USEPA Methods, 8260 (water) and TO-14 (gas).

Ordered By _____
Roger W. Briggs
Executive Officer

EFFECTIVE 1-21-98
Date

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